The Builder.

No. CCCLXXXVI.

SATURDAY, JUNE 29, 1850.

LAST week, as on former occasions, we dropped down amongst the members of the Archæological Institute during their congress, that we might gather from their sayings and doings such matter for the delectation of our readers as seemed to promise it. Oxford, the scene of action, is itself a thing pleasant to see; the weather, too, was glorious, and the old colleges and their gardens were never looked at under a clearer air. Magdalen Tower, the Ratcliffe Library, the Church of St. Peter in the East, with its crypt sometimes called Saxon, the Schools where the "Orders" were early introduced, St. Mary's Spire, &c., &c., "hurtle into view, of interest wonderful."

We brought away a couple of memorials, namely, the north transept of Merton Chapel and part of the Old School at Magdalen.* At Merton the stone is much decayed, and this is unfortunately the case with every building in Oxford. The canopies of the niches have fallen off. The cornice over the door contains heads of men, animals, and foliage. The north side of the chancel, partly seen in our view, has boldly projecting buttresses, with large gargoyles. The tracery of the windows is varied in nearly all. The great east window, decorated in style, is the finest in Oxford. Withinside some works are going on; and a portion of the roof has been painted as a specimen card. The date of that portion of the building which we show is 1424, in which year the chapel was re-dedicated.

The temporary Museum of the Institute was formed in the Taylor and Randolph Buildings (illustrated by us in a previous volume), and included some interesting embroidery, vestments, and carving, but it was not so rich as it has been on some previous occasions. The colleges retained their plate and curiosities, and exhibited them in their own place at set times. At New College the crozier of William of Wykeham, with its elaborate canopy work and enamelled ornaments, received particular attention.

At the introductory meeting on the 18th, the principal feature was a learned discourse on the study of Archæology by Mr. C. Newton, wherein, as he said, he endeavoured to present a sketch of the nature and value of oral, written, and monumental evidence, and to show that it was the characteristic of archæological societies to give corporate strength to individuals, and thus become historians of national manners and antiquities. These were the great functions which they had undertaken, and he urged upon them the necessity of carrying them out, and not to forget that archæology only advanced them one stage, supplied one chapter in the whole history of human culture, one link in the chain which held them together in bonds of attachment, but, if followed out, would enable them to span the abyss of time.

The Rev. Vaughan Thomas, Mr. Hallam, and Lord Northampton (the latter fresh from Egypt to the banks of the Isis) spoke afterwards. In the evening the Principal of Brasenose read a paper on

THE UNIVERSITY CHURCH OF ST. MARY,

which all who have visited Oxford know by its beautiful spire and its incongruous though picturesque south porch, with twisted columns, in the High-street. The spire, by the way, has a scaffolding round it, and the upper part of it is being rebuilt. Some of the pinnacles at the foot of it, too, have been restored, or, perhaps, as people differ in opinion as to the propriety of some of the work done, we should say repaired. There was disagreement with the architect who was at first engaged upon it, and now it is in the hands of Mr. Buckler.

The foundation of St. Mary's has been referred to King Alfred. Let this be as it may, the church is mentioned in the Domesday Survey. The paper in question quoted a number of curious letters for funds, addressed to various persons in the early part of the reign of Henry VII., when, after it had been for some time in a ruinous condition, the whole edifice, except the tower and spire, and a small portion eastward of the tower, were entirely rebuilt as it now stands, by means of funds supplied by members of the university, or obtained by the assistance of their friends.

The rebuilding of the church was completed in 1492, the chancel having been erected some years earlier by, or at least at the cost of, Walter Lyhert, or Hart, Provost of Oriel College, and afterwards Bishop of Norwich, who died in 1472.

"Of the architect of the nave and aisles," said the reader, "I know not that we may speak with certainty. The President of Trinity College asserts that Sir Reginald Bray, who was High Steward of the University from 1494 to 1509, was the author of this work. Something may also be ascribed to the well-known reputation of Sir Reginald Bray for skill in architecture. Whether he were the architect of our church or not, we may at least say that the credit of the work would detract nothing from the fame which he has justly acquired by the splendid memorials of his taste and skill to be seen at Malvern and at Windsor.

But whoever the architect of the new building may have been, the church has not come down to our times in the state in which he left it. A few years after its completion in 1492 it suffered severely from a storm, the effects of which have never yet been fully repaired.

All the allusions to this event that I have been able to discover are little more than repetitions of a note by Leland.

The time at which the reparation of these injuries was undertaken may be fixed with greater certainty. Dr. Plot, in his 'Natural History of Oxfordshire,' published in 1677, observes that 'there are many lofty spires about the country as well as city, built all of freestone, and of exquisite workmanship, such as those of Bampton, Witney, Burford, Bloxham, Spilsbury, Kidlington, &c., but that which excels all the rest is the spire of St. Mary's in Oxford, the University Church, the battlements whereof were repaired, and thus set thick with pinnacles as it now stands by Dr. King, then Dean of Christ Church, and Vice-Chancellor of the University,—afterwards Bishop of London.'

Dr. King was Vice-Chancellor of the University from 1607 to 1610, and the architectural style of the pinnacles now standing on the body and chancel of the church, as well as of those which have been recently removed from the base of the spire, corresponds so closely with the work of that period, as to leave no difficulty in the way of accepting Dr. Plot's representation.

The material employed for the construction of the pinnacles put up in the time of Dr. King, being the perishable stone of this neighbourhood, had become much decayed, in the course of two centuries and a half which have passed since their erection. This, in addition to many serious defects in the masonry of the upper portion of the tower, having rendered extensive repairs absolutely necessary, the charge of effecting the required operations has as of old, been undertaken by the University, and it is hoped that in a few months the whole will be completed.

It is evident that the present church, with its noble dimensions and symmetrical design, owes its existence to the necessity for rebuilding the ancient structure. The progress of enlargement by partial re-edification may be traced with considerable distinctness, the tower and spire presenting architecture of more early date than is attributable to any other portion of the edifice. The plan of the ancient edifice which preceded the present church cannot now be ascertained, but the remains of large windows on the east and west sides of the tower evidently show that it was originally intended to stand clear on three out of its four sides."

The south porch, to which we have already alluded, was built in 1637, at a cost of 200*l.*, principally employed in producing ornaments that do not contrast favourably with the delicate fan groining, which is all that remains of the ancient design.

Amongst the papers read on Friday was an interesting biographical notice, by Mr. Britton, of John Carter, the stern champion of Gothic architecture at a time when it had fewer admirers than now. We give the paper in full on another page. At the close of it, Mr. Britton justly complained of the want of a Metropolitan Museum for the preservation of national antiquities. In reply, Lord Northampton, first remarking on the long and useful life of the author of the "Cathedral Antiquities," assured the meeting that the subject had occupied the attention of the trustees of the British Museum, and was still under consideration. Something had been done, and more would follow.

At the same sitting the Rev. J. L. Petit read an account of *Sherborne Church, Dorsetshire*, stating as his excuse for selecting so distant an object, "that as this fine church is now undergoing restoration, it is invested with a more immediate interest, and it is right to direct to it the attention of the antiquary, both that he may notice any evidences of its history developed by the process, and also that he may be enabled to offer such suggestions as may strike him as to retaining or changing any features existing at the time when the work was taken in hand. I say this, as the beautiful south porch has been entirely pulled down, and though it appears that the arcades in the lower part will be reconstructed, as far as possible, with the same individual stones, which are ranged in their order on the grass, still, from a drawing I saw of the proposed restorations, it seems to be the intention of the architect to give the upper part a high-pitched gable and pinnacles, with Norman details, instead of the horizontal parapet, which is familiar to all who are well acquainted with engravings of the building, and which harmonized so well with its general lines: with the exception of this porch, the character of the church, externally, is a not very early Perpendicular, the uniformity of which is owing to its almost complete re-erection shortly after a fire, which happened in the reign of Henry VI. in consequence of a dispute between the monks and the townspeople."

The whole internal length of this church from the western wall to the door of the lady chapel is 200 feet: the height of the choir vaulting is 54 ft. 8 in.: the width of the nave and aisles is 60 ft. 10 in. The roofs are very fine, and in connection with these Mr. Petit offered the following observations on

THE CONSTRUCTION OF VAULTS.

If two equal semi-cylindrical vaults, with springs of equal height, cut each other at right

* See pp. 306 and 307.

angles, the diagonal arches which mark their intersection will be each the half of an ellipse, in a vertical plane inclined to the walls of the building at an angle of 45 degrees, and having its axis major, which will be horizontal, to its axis minor, which will be vertical, in the ratio of $\sqrt{2} : 1$.* If any other ellipse be used for this diagonal arch, or an ellipse whose plane inclines to that of the side walls in any other angle than that of 45 degrees, either the transverse arch, or that of the cellular vault, or both, must be elliptical, instead of semicircular; that is, if the springs are of the same height, and the ridges horizontal. This will be the case when the vaulting cells are narrower than the main vault. If the transverse arch be a circle, and the plane of the diagonal ellipse be inclined to the walls at an angle greater than 45 degrees, the arch of the cell will be half an ellipse whose axis major is vertical, or whose curvature increases from the spring to the vertex. If the cells have a semicircular arch, the transverse arch will be half an ellipse, but its axis minor will be vertical, or the curvature *least*, at and near the vertex. This, if I remember, is the case at Laach Abbey, in Germany; also in the crypts at Gloucester. If, now, the ridge of the vault be not taken exactly at the highest part of the circle, but at a distance from it, so as to form a pointed arched vault, the ridge of both the main and cellular vaults being kept horizontal, and at right angles to each other, the rule is not altered, but if the plane of the diagonal ellipse be inclined in any other angle than that of 45 degrees to the walls, the transverse arch, or that of the cellular vault, or both, must consist of elliptical instead of circular segments; and if the curvature increase towards the vertex of the arch, its form will not be so graceful as one in which the curvature diminishes in ascending. The exigencies therefore of unequal vaults, though they may have given rise to pointed arches, still demanded many more modifications of line and surface. The simple introduction of a pointed arch would not of itself have solved the difficulty. Either elliptical, transverse, or cellular arches, or inclination of the ridges, or elevation of the springs, or depression of the vertex, or some variation of surface, must have been necessary. In some early English works I think the elliptical form of the cellular arch is very apparent, and not graceful.

Now this may account for a variety which occurs in Decorated or Early Perpendicular work, where the cellular vault branches from the principal one at a point lower than the vertex, thus leaving a portion of the barrel roof unbroken. By this means diagonal arches, or rather portions of them, which shall satisfy the conditions of both the form and inclination of the ellipse belonging to arches of circular lines, will be obtained; and the cellular arch, though smaller than the transverse, will be equally made up of pure circular arcs. We have this kind of vaulting in the nave of Winchester Cathedral, and of Tewkesbury Church; in each of which none of the numerous ribs and bosses which cover a comparatively simple surface, will be found to be without meaning. But a still farther advance may be made. Let a point be taken in the ridge of the cellular vault, and joined with its spring by a portion of an arch, and also draw an arch from the spring to the point in the ridge of the main vault which corresponds with that of the cellular vault, that is, lying in the same vertical plane, and cut away the angle of the original roof between the two, so as to form an inclined ridge between the vertex of the principal vault and the point taken in the ridge of the cellular one, and an oblique face of roof, between the main and the cellular vaults. This forms a beautiful vault, which occurs (not to name other instances) in the transepts of Tewkesbury Church, in Gloucestershire; and you will observe, it may be constructed to satisfy the following conditions:—

That the ridge of the principal, or longitudinal vault, shall be perfectly horizontal;

That the transverse arches of both the principal and cellular vaults shall consist of simple circular segments;

That all the edges between different surfaces shall lie in vertical planes, forming portions of true arches;

And, that all the surfaces shall be developable—a condition favourable, though not essential, to the beauty of the roof, and, I should suppose, convenient in its construction.

The number of oblique faces may be multiplied, even without the introduction of any other kind of surface, so long as we preserve unbroken the portion of the principal vault which is left in the foregoing construction.

But if we wish to infringe upon this by an oblique face, and yet keep the main ridge horizontal, we must introduce another description of surfaces, which shall neither correspond with the principal or cellular vaults nor with the oblique vaulting surfaces, but connect the latter with each other and with the former. I shall not attempt to enter into an investigation of their various forms or inclinations, but merely observe that they will mostly be found to be flatter, or less inclined to the horizon, than the surfaces of the original simple vault which they replace.

Though the oblique surface was probably first introduced for the purpose of connecting the ridges of two vaults unequal in height and span, the beauty of the effect thus obtained led to its use where this inequality did not exist, and it may perhaps be found to have facilitated the combination of vaults of different span, but equal height, without the abandonment of circular lines in the arch.

* It is essential to the beauty of a roof that the diagonals should have no double curvature, nor lie in a plane inclined to the horizon, but be portions of true upright arches.

OXFORD CASTLE

Afforded the Rev. Mr. Hartshorne a subject. The keep still remains; it is singular from its rude construction and the amount to which the walls of it *batter*. The absence of mention of any military building here in "Domesday Survey," leads to the inference that it was erected after the date of that book. There was a castle here when the Empress Matilda was besieged by King Stephen in 1142. There is no reason to doubt that the earliest parts of the structure remaining were then in existence. Judging, too, from those general inductions architectural observers have laid down as a guide for determining dates, there is enough to be seen in that part of the building erroneously called "Maud's Chapel," to show that it belongs to the end of the eleventh or very beginning of the twelfth century, between 1087 and 1135. The mound is much earlier, and before the Saxon period, but the remains within it belong to the time of Henry the Third; so that here may be seen what preceded the Mercians, and the latest remains erected by the Plantagenets. The Crypt, commonly called Maud's Chapel, is a most interesting example of early Norman work. The vaulting is bold, and the voussoirs are carefully worked with stools. The capitals of the piers are highly curious. It was in all probability the crypt under the great hall.

"During the absence of the court, the castle was left in the custody of the sheriff, who superintended all the necessary works, and so slightly were parts of it built that there are precepts almost annually recurring, which show that repairs were essential very soon after the buildings themselves were first raised. This slight and defective mode of construction was not, however, peculiar to Oxford, but must be rather regarded as a characteristic of the military buildings of the period: all of them exhibit sufficient evidence of the negligent way in which castles were built. And if the proof were not too frequently before the eyes, a glance over some of the rotulets of the Great Roll of the Pipe would confirm the assertion, since it tells us that even the Castle of Oxford, which was commenced in (12 Hen. II.) 1166, and finished in 1173, substantial and perfect as it now looks, wanted reparation within the first fifteen years."

Professor Willis's Discourse on the Architectural History of Christ Church Cathedral was given, partly in the Sheldonian Theatre and partly in the building. It was a very pleasant narration, delivered with that clearness and sparkle which characterize the professor; but to those who had not heard his previous essays, Lord Northampton's statement, made at the close, that not merely the popularity of the Institute, but its very existence, was owing to Mr. Willis's papers, must have sounded oddly.

He said very frankly at starting that the cathedral was unworthy of the city, and a disgrace to the University. We may briefly remind our readers that a convent was endowed here early in the eighth century by Didan, whose daughter Frideswide played a prominent part. It was probably dedicated to her in 1280, when her relics were removed from one part of the building to another. None of the Saxon work remains: the earliest portions belong to the Norman period. Some had thought, Mr. Willis said, that the lower pier arches belong to an earlier construction, but by taking off the lead covering of the aisles, he was enabled to prove that these upper and lower arches, bizarre as the arrangement was, were of the same period. The chapel on the north side of the choir, usually called Lady Montacute's Chapel, he considered was the Lady Chapel, a supposition strengthened by the fact that one of the bosses displayed a bunch of roses and another consisted of lily leaves, both emblems of the Virgin Mary. Relative to the conversion of monasteries into colleges, the lecturer said St. John's at Cambridge was an early instance. The change was quietly effected at Magdalen, Oxford, in 1456. Jesus College, Cambridge, was founded in the same way in 1496. Christ Church, Oxford, of which he was speaking, was founded on the ruins of several monasteries, including that of St. Frideswide. He concluded by quoting a passage from Wood, asserting the danger of following the fashion of the time in making restorations. In Salisbury Cathedral, the lecturer said, every tomb had been treated as a piece of furniture,—cleaned and altered.

The Chapter House at Christ Church is an exceedingly interesting early English apartment, at present divided and mis-fitted-up. It is hoped that it will one day be set right again. We wanted to say something of a pleasant excursion or two, but cannot now afford more space.

ON THE LIFE, PROFESSIONAL WORKS, WRITINGS, AND CHARACTER OF JOHN CARTER, F.S.A. AND DRAUGHTSMAN.

THAT the present generation of Archæologists is deeply indebted to John Carter, cannot be disputed or denied. Like his predecessors, Camden, Aubrey, Dugdale, Stukeley, and others, he did his best, in his peculiar sphere, to lay the foundation for that branch of science and art which he loved to cultivate; and but for his labours we should have been ignorant of many interesting ancient objects which since his time have been entirely destroyed. It has always been a gratification to me to acknowledge obligations to by-gone labourers in the Topographical and Archæological vineyard. To Aubrey, who was a native of the parish which gave me birth, I have devoted a goodly sized quarto volume, in which I have endeavoured to vindicate his memory from the captious censures of his ungenerous and unjust rival, Anthony a'Wood, as well as from the unfair and sneering criticisms of more recent writers, who have betrayed their ignorance of his real merits. Possessing a large mass of manuscript journals, letters, and papers, by Dr. Stukeley, I have long meditated on and hoped to produce such a memoir of that zealous, industrious, and learned antiquary, as would at once do him justice, and form a valuable contribution to our biographic annuals. And I may venture to say, from a personal acquaintance of some years with the late John Carter, from having studied all his published works, and from repeated examinations of a large collection of his sketches and drawings (in my possession), that I feel qualified to describe his personal characteristics, as well as to appre-

ciate his merits as an artist, an author, and a member of society.

John Carter is best known by his published works, which, however, owing to their large size and costly nature, and also from the captious disposition of their author, had but a limited circulation. In 1780 he commenced a series of etchings, in folio, illustrative of "Ancient Sculpture and Painting," which he published in numbers, periodically, till the year 1794. In 1795 he commenced a similar series of plates of "Ancient Architecture," of which, in 1816, he had completed twenty-eight numbers; and on these two works his reputation as a draughtsman and engraver mainly rests.

As draughtsman to the Society of Antiquaries he executed a series of illustrations of Cathedrals and other Ecclesiastical Edifices, which were engraved by, and under the direction of James Basire, and published by the Society between the years 1795 and 1813. These comprised St. Stephen's Chapel, Westminster (1795); Exeter Cathedral (1797); Bath Abbey Church (1798); Durham Cathedral (1801); Gloucester Cathedral (1807); and St. Alban's Abbey Church (1810). Seven drawings of Wells Cathedral, now exhibited, were prepared by the same artist for a volume in continuation of this series, but these have never been engraved. They are characterised by the same fidelity and spirit as those in the published volumes, and possess a peculiar degree of interest from the singularity of the edifice and its adjuncts. In addition to the above-mentioned publications Carter produced some minor works which will be hereafter noticed; and he was a constant correspondent in the *Gentleman's Magazine* for nearly twenty years.

Carter was the son of a statuary or mason, and was born in Piccadilly, London, on the 22nd of June, 1748, and lived and died a bachelor. From boyhood to old age he was professionally an artist; but rather an antiquarian and architectural draughtsman than a practical architect, though he assumed the latter title in his communications to the *Gentleman's Magazine*. He was never articled to any profession, but left to study and practise drawing as fancy and accidental circumstances prompted. The self-instructed are usually desultory and eccentric, and such especially was the artist now under notice. In person, manners, and opinions, he manifested many singularities. If my late friend, Isaac D'Israeli, had included Carter's correspondence and peculiarities in his interesting work on the "Quarrels of Authors," he would have delineated a character full of irritability and suspicion; often wielding his pen in censure and bitter sarcasm, as well as in useful and accurate description; and again, in the excess of his Quixotic zeal, attacking the phantoms as well as the realities of "Architectural Innovation." Such a picture would have strikingly illustrated the observation of Mr. D'Israeli, that an author is "a human being who possesses at once two sorts of lives—the intellectual and the vulgar: in his books we trace the history of his mind, and in his actions those of human nature."* The writer of a short notice of Carter, in the *Gentleman's Magazine*,† 1817, judiciously observes that "his valuable representations of sculpture and painting, and of the ancient architecture of England, have preserved the forms of buildings and decorations long since lost, and of many which may be hereafter demolished. These extensive and useful works were wholly executed by Mr. Carter in a free and masterly manner, with character, boldness, and a feeling peculiar to those who know the utility of every line they draw. In defence of an old relic he would brave the keenest war that pen could wage: he was never intimidated by threats, or diverted from his object by ridicule; and as he gave no quarter, so he expected and received none. But the severity and sarcasm which too often marked his writings are not to be justified. He would repeatedly declare himself 'a coward in everything but the good old cause,' which I sincerely believe; for exclusively of this he had no fixed determination. Nervous to an excessive degree, he would fancy the greatest consequences to have arisen from the most casual and trifling cause; and a dispute with a servant has brought on a fever. To causes like this he attributed the illness which attended the latter years of his life."

* "Quarrels of Authors," preface, p. vi.
† Mr. J. C. Buckler.

Soon after his father's death he was in the employ of Mr. John Dixon, surveyor and mason; and afterwards of Mr. Henry Holland, bricklayer, in whose office he obtained some insight into the practice of building, and also in drawing architectural plans and sections. He incidentally relates an anecdote referring to this early period, as follows:—"At the funeral of the late Lord Bath, about the year 1765, I being then some 16 or 17, attended to see the ceremony, which was by torchlight, in the Abbey church, at Westminster, opposite the tomb of Edward I. in the aisle below. I stood with many others on the tomb. The crowd and confusion was so great, that several gentlemen, thinking it necessary for their own and the company's safety to defend the stairs into the chapel of the Confessor, not only drew their swords, but tore down the oak canopy above Edward's memorial to convert it into weapons: and in such state it now remains."

Being at Windsor in 1764, he made a coloured drawing of part of one of the old towers of that famed royal fortress; and from this circumstance,—with the impression made on his young and ardent mind by the imposing, picturesque, and interesting buildings of that castle,—we may probably date the birth of that enthusiastic devotion to ancient architecture which afterwards grew up with him to vigorous maturity. At the very commencement of his professional career Carter seems to have resolved on preserving all his original sketches, which ultimately extended to a large and curious collection. This series, now in my possession, fills thirty-seven folio volumes, and furnishes a sort of *graphic Auto-Biography*, or index to his travels, studies, connections, employments, and peculiarities; for, besides pen and pencil sketches of buildings, monuments, stained glass, and antiquities of every description, the collection is interspersed with letters, bills, and memoranda of different kinds. In this series are the original sketches from which the numerous plates already mentioned were afterwards etched and published, as well as many hundreds which he executed for distinguished lovers of archæology. One of his principal patrons was the late Richard Gough, who advised and instructed him with reference to the various objects likely to come under his notice in his journeys, and many of whose letters are preserved in this collection. Here, too, are the original sketches from which he prepared an elaborate set of drawings of YORK CATHEDRAL, for Sir Mark Masterman Sykes, bart.; but as the contract was not concluded when the artist died, they were sold at the auction of his property for 300 guineas.*

It is evident from his sketches† that Carter was industriously employed for more than forty years in travelling into almost every county in England to examine, sketch, and measure those venerable edifices which were so well calculated to sustain and reward his enthusiasm.‡ The series is, indeed, a worthy monument of his persevering industry; of which I cannot better convey an idea than by stating that his works on "Sculpture and Painting," and "Ancient Architecture," contain 236 folio plates, all etched by himself. The Society of Antiquaries' series of Cathedrals, &c. comprise more than eighty large plates from his drawings.

From 1774 to 1778 Carter was engaged in making designs, or "inventions," as they are called, for publication in a periodical called *The Builders' Magazine*.

In 1780, and again in 1791, Mr. Carter was consulted by the Dean and Chapter of Peterborough respecting intended alterations of the *organ-screen and choir* of the cathedral; and it appears that the organ-screen was finished after his drawings.

In 1780 he commenced his first great work, "Ancient Sculpture and Painting," which he states he was induced to embark in from the niggardly conduct of publishers, and especially of one who gave him only a guinea for a drawing which he valued at 5*l.* or 6*l.* The extent and importance of this publication, which continued, periodically, during fourteen years, have been already adverted to. The letter-press descriptions were written by himself; but a number of valuable essays were contributed by his better-educated antiquarian friends and patrons, Dr. Milner, Mr. Douce, &c.

In 1786, whilst the above work was in progress, Carter resorted to the singular expedient of printing and publishing a catalogue of his principal sketches and drawings, accompanying the same with small etchings of the principal subjects, in size no larger than 4½ inches by 3½, but characterised by a remarkable degree of breadth, clearness, and effect. These "Etchings of Ancient Buildings," 120 in number, were issued in six miniature volumes, at periodical intervals between 1786 and 1793, each volume containing twenty prints, and a list of other drawings (nearly 600 in all), notes being added with the names of gentlemen for whom copies or finished studies had been made by him.

On the completion of the "Sculpture and Painting" he announced his "Specimens of Ancient Architecture," from the most remote period to the sixteenth century; showing the progressive state of that science, both in the circular and in the pointed arch, commonly known by the opprobrious term Gothic. "The principal design of this work," he states, "will be confined to the pointed arch, or the Gothic, in an attempt to reduce that noble style to a practical system of workmanship,—a science at this day so little understood." After a lapse of more than twenty years, only twenty-eight numbers were published (bringing down his series of illustrations to the time of Edward the Third). His mortified feelings at the result are strikingly exemplified in a letter to the *Gentleman's Magazine*, January, 1816: "The ancient architecture of England being at a stand, for want of the usual aid,—liberality of subscribers (some dead, some tired of collecting, &c.),—the author proposes, out of respect to the subscribers, and a peculiar satisfaction to himself, to meet them at any time or place, and there cast into the flames all the remaining stock, &c., of this work, and of that on the ancient 'Sculpture and Painting.'"

In 1795, simultaneously with the commencement of the "Ancient Architecture," Carter's illustrations of St. Stephen's Chapel, Westminster, were engraved for the Society of Antiquaries; and that unwieldy folio was followed in the next fifteen years by the corresponding volumes already mentioned. For all of these, Carter wrote the "Descriptions of the Plates," the historical matter being contributed by more learned members of the society.

Carter's correspondence with the *Gentleman's Magazine* does not appear to have commenced until the year 1798; but from that time until his death he was a constant contributor to the pages of that venerable and valuable periodical. His principal communications were a series of essays under the title of "Pursuits of Architectural Innovation, by an Architect," and their professed object was to expose to public indignation, and to express the contempt which he felt for, every *innovator* on the genuine characteristics of ancient architecture, and likewise for every person, whether architect, builder, or amateur, who dared to mutilate the forms or features of our time-honoured and interesting architectural remains. In his third letter (November, 1798) he exclaims—"I presume to profess myself a real antiquary, and in conformity to that character I venerate the history of my country; I venerate the names of the great, the warlike, and the good of former times; I venerate those astonishing, those magnificient fabrics, those enchanting monumental memorials which they have left behind them as proofs of their enlightened genius and skill! Thus far as an antiquary; but as an artist, who from my earliest years have been in the habit of constantly admiring their sublime performances, in critically surveying and minutely copying them, I cannot but feel in the most sensible degree any innovations made in their arrangement, or any destruction made in their several parts. And however weak my efforts may be in the task I have undertaken,—to point out to the public 'The Pursuits of Architectural Innovation,' and

* They are described in the catalogue as "twenty-four drawings, with twelve sheets of MS. description, of uniform size, on the largest elephant paper."
† Mr. Buckler says of Carter's sketches,—"Some of them are admirably executed; and I have often preferred their boldness and character to the more elaborate copy."—Memoir, *Gentleman's Magazine*, 1817.
‡ Sir John Soane informed me that some of the adventures and peculiarities of our antiquary were described in a pamphlet entitled, "The Life of John Ramble, artist."

to stay its iron hand,—yet I am confident my efforts will not be entirely in vain."

To this creed and to this resolution he pertinaciously adhered. The magazine referred to affords abundant proof that it involved him in many public and private disputes; in much wordy warfare; in crimination and recrimination; for his zeal frequently carried him beyond the bounds of moderation, and his letters are replete with personality and prejudice. Amongst the knights who, either masked or with vizor up, entered the list against our renowned Quixote, were James Wyatt, John Sidney Hawkins, Dr. Vincent, the Dean of Westminster, and Thomas Gayfere, the mason who conducted the restoration of Henry the Seventh's Chapel.

The alterations in the cathedrals of Durham, Salisbury, Lichfield, and York, in St. Stephen's Chapel, and more especially in Westminster Abbey Church and Henry the Seventh's Chapel, were subjects on which "the architect" made his chief strictures; and he bitterly complained of being excluded from some of these edifices when new works were in progress. He was both severe and sarcastic on the wanton destruction of many fine and interesting specimens of ancient art; and on the incongruity of their pretended restorations he especially reproached Wyatt and others, as utterly ignorant of the elements and the spirit of ancient ecclesiastical architecture.*

When, on one occasion, his qualifications were impeached by a correspondent of the magazine, he strongly, but justly, and without improper arrogance, thus asserted his pretensions:—"It has been the business of my life to lay in a stock of experience from our antiquities by constant study, and by delineatory imitations. I have traced the rise and progress of architecture among us from the Ancient Britons to the reigns of the Tudors; discovered the origin of the Pointed Arch system; distinguished and parcelled out the various modes that system has run into, from William the First to Henry the Eighth; descanted on every occasion on the unrivalled excellence of this art, even from its first appearance to its total disuse in the sixteenth century; witnessed with every degree of mortification a fanatic revival of these orders of architecture in mine own day, the ridiculous turn of which I have always endeavoured to expose, as being the refuse of taste, and at the same time to convince all that with our ancestors taste alone was permanent. I have raised up a hue and cry against those who would destroy, and those who have destroyed our antiquities, and last, though not least of my struggles, I was the first who scouted the nickname *Gothic*, given to our ancient architecture by the *Wreneans*, in Charles the Second's reign, and continued down, with unabated obloquy, to the present year of our most Gracious Sovereign, George the Third."

In May 1816, only a year before his death, the Rev. Archdeacon Owen, of Shrewsbury, came forward in the *Gentleman's Magazine* as the writer of a valuable, because disinterested, testimony to Carter's merits, with particular reference to the abandoment of his "Ancient Architecture," which had been recently announced. "It is not too much," says that learned and amiable author, "to predict that with Mr. Carter will perish all hopes of a full completion of his subject, for no artist now living or likely to arise will be able to add the abundant matter still wanting to perfect his intentions." Carter was fully sensible of, and warmly acknowledged, this well-merited and friendly eulogy. "I do not weary in the cause," he wrote; "my zeal increases with my years; and I seek no other repose but what is sufficient to render me competent to follow my employ with the returning day. A continued flow of health, and a renewal, within these two years, of my early sight (the greatest of all earthly blessings) are granted to me."

He died on the 8th of September, 1817, in the seventieth year of his age. Although he had suffered much in the winter of 1816-17 from diarrhœa, dyspepsia, and dropsy, he does not appear to have had any relative, confidential friend, or even hired nurse in his house during that illness. "He continually represented himself as a solitary being, existing in life without any natural connections from whom he could expect assistance when age and imbecility came upon him; and in his last illness he had no person with him but a common servant." "He was confined to his bed hardly one day, having been in his work-room the morning of the day previous to his dissolution: he was there taken ill, and suffered many hours' excruciating pain, after the subsiding of which he lay for a considerable time in a quiescent state, and expired the next day almost imperceptibly." His remains were removed to the churchyard of Hampstead, and a tombstone was raised to his memory by Mr. Leathes and Mr. Hoare, his executors. Sir Henry C. Englefield, Bart., had been named by Carter to act with these gentlemen, but he declined.

In February, 1818, Carter's books, drawings, and other miscellaneous property, were sold by auction by Mr. Sotheby. The copyright of his six small volumes of "Views of Ancient Buildings" was sold for 56*l.* 16*s.*; that of the "Sculpture and Painting" for 330*l.* 15*s.*; and I purchased the stock and copper-plates of the "Ancient Architecture of England" for 288*l.* 15*s.*, for my esteemed friend Mr. John Broadley. They were again disposed of at Mr. Broadley's sale to Mr. Henry G. Bohn at a greatly reduced price. That enterprising bookseller, who had also acquired the "Sculpture and Painting," published new and corrected editions of both works in the years 1837 and 1838,—the "Ancient Architecture" under my superintendence, with notes and copious index, and the "Sculpture and Painting" under that of the late Sir Samuel R. Meyrick, and other antiquaries.

The property sold on this occasion comprised a few books, some miscellaneous antiquities, fragments of stained glass, several suits of armour, about thirty lots of drawings by himself, his drawings of York Cathedral (sold, as already mentioned, for 300 guineas), and his collection of sketches, in thirty-seven volumes, which produced 173*l.* 5*s.**

On one occasion I spent an evening with John Carter to witness an exhibition of his model theatre, with its pasteboard performers, and to hear his own personal reading of one of his dramas. Six small lamps were employed to light and give effect to his stage; but one candle sufficed for his tea-table. Every thing around him was gloom, poverty, and penuriousness, calculated to depress the heart and to induce a regret for human infirmity, and that misanthropy which is usually created by a morbid temperament. "Architectural Innovations," public apathy, and the want of patronage for his publications engrossed the whole of his thoughts and comments. He was then working on a series of drawings of Malmsbury Abbey Church for Sir Richard Hoare, and it was a letter from that worthy baronet which gained me such a favourable reception from the captious antiquary. I may add that I had not then commenced my "Architectural Antiquities," or I should not have been admitted as a guest at his domicile.

His servant at this time was a girl about sixteen years of age; and I was informed the following year at Malmsbury, that she occasionally accompanied him on his sketching excursions, dressed in boy's clothes.

Amongst Carter's eccentricities was the manner of laying in his weekly provisions. Accompanied by his servant, he went at a late hour every Saturday night to Newport Market, to purchase meat, &c., at the lowest price. His purchases were limited to two pounds and a-half of the neck of mutton, a remnant of bacon, with potatoes, an ounce of tea, a pound of brown sugar, &c., which were intended to feed the two for the following week; for both in food and clothing he was truly parsimonious. He was a large holder of Government Life Annuities, and in the July previous to his decease in September, he transferred 2,000*l.* Bank Stock to the Commissioners, for a further purchase, upon which the executors received only one quarter's dividend. In irritable temperament, impatience of contradiction, eccentric and penurious habits, Carter resembled the Royal Academicians, James Barry and James Northcote. Indeed, old bachelorship is unnatural and irrational, and is too generally superinduced by infirmity of temper, which, as years increase, occasions confirmed moroseness and diseased mind. The failings of John Carter had their origin in this cause, and in his want of better education; but, with all his peculiarities, he deserves the warmest gratitude of the present race of archæologists, as an indefatigable and able draughtsman, as a determined enemy to the destruction of antiquarian relics, and as the first to attempt a classification of our national architecture.

JOHN BRITTON.

* It is in contemplation to reprint Carter's essays in the *Gentleman's Magazine* in a collected form.

* Some dramatic and miscellaneous manuscripts by J. Jameson, Carter's maternal grandfather, were also part of the collection, and from that individual the artist probably derived his strong partiality for theatrical pursuits. He altered and adapted for representation five plays by the older dramatists, the manuscripts of which were sold by Sotheby for very low prices; and besides these there were two other plays, one called "The Apprentices, a mock Tragedy, by John Carter, 1770;" and the other "The Barbers, a mock heroic Tragedy, by John Carter and John Eaton, 1769." Our antiquary was also a great musical amateur, and had written and composed eight different operas, the manuscripts of which shared the fate of his general collection. Two of these were called "Dramatic Romances, founded on historic Facts of the fourteenth and fifteenth Centuries;" and to each of them the author had, with great labour and expense, constructed a stage with proscenium and highly-finished drawings, representing the various scenes.

SOME REMARKS ON TERRA COTTA AND ARTIFICIAL STONE.*

IT is rather remarkable that the revival of the manufacture of terra cotta, or more properly of artificial stone, in England, should have been effected by a lady. About sixty years ago, Miss Coode, from Lyme Regis, possessing a large share of scientific knowledge and energy, embarked in a small manufactory of artificial stone, in Lambeth, which, by her perseverance and good management, eventually attained a considerable degree of celebrity. To this original establishment in Lambeth the merit is due of greatly improving the composition of the material, and the processes by which its permanent character was attained. The proprietor had also sufficient enterprise and discrimination to avail herself of the talents of some distinguished artists, and thus produced works of a superior character, which may fairly vie with those of the chisel. The bas-relief in the pediment over the western portico at Greenwich Hospital, representing the Death of Nelson, was designed by West, and executed by Bacon and Panzetta, who also modelled many other distinguished works. The rood-screen or loft at St. George's Chapel, Windsor, was executed in the same material.

With respect to modern instances of the use of artificial stone, St. Pancras Church may be considered as one of the most important; the greater part of the ornamental details being formed of this material, at the large outlay of 5,400*l.* The work was executed by Mr. Rossi, from the designs of Mr. Inwood, the architect; and according to present appearances, the material promises to be very durable. About the same time extensive bas-reliefs, colossal figures, and other decorations, executed in the same material, were placed on the front of the Custom-house, London, but these specimens have been removed. The statue of Britannia, made of artificial stone, which crowns the Nelson column at Yarmouth, remains uninjured by the exposure, to which the stone work seems to be yielding. The Bau-Akademie, in Berlin, by Schinkel, is a remarkable example of the modern adaptation of moulded brick and terra cotta, of which every part, even the face of the walls, is most carefully wrought and finished.

The ancient examples are evidently formed simply of fine clay, or brick earth, carefully prepared and well burnt, and they are, therefore, precisely of the same nature as coarse pottery ware, and are correctly designated "terra cotta;" but the modern artificial stone is a very different substance, and greatly superior to them in hardness, texture, and colour. The result of inquiry at several establishments shows that some difference exists, both in the composition and processes adopted by the respective manufacturers, but without any obvious difference in the results. The principal ingredient is the white potter's clay, forming about one-half; pulverised stoneware, from one-third to one-fifth; ditto glass, from one-fourth to one-ninth; and some add, for finer purposes, a small portion of white Ryegate sand, and powdered flint, about one-tenth

* From a paper read at the Institute of Architects, by Mr. Charles Fowler, V.P.

part of each: these ingredients are carefully mixed in a pug mill to a stiff consistence, suitable for modelling or moulding, and then worked into the various forms required. With a view to ensure perfect burning, an uniform thickness must be preserved in all parts, usually about 1¼ inch, but proportionate to the strength and bulk required: considerable attention is necessary in the process of drying, that it should be slow and regular, so as to avoid any distortion of form. The time to be allowed must, in some measure, be governed by the state of the atmosphere, and other circumstances: the same considerations regulate the burning, which should proceed by very slow degrees to a white heat, and ample time should be allowed for cooling, the practice in these respects, which appears to vary very widely in different manufactories, allowing from ten to fourteen days for drying, from seven to fourteen for burning, and three to four for cooling.

The kiln at Messrs. W. Cubitt and Co.'s, which may be taken as an ordinary example, is a cylinder of 10 ft. 6 in. diameter externally, and 10 ft. high to the base of the cone. The enclosing wall is two bricks thick, having a large opening for packing and unpacking the articles to be burnt. When the kiln is filled, this is closed up with lumps, preparatory to lighting the furnaces. The interior is lined with tiles half an inch thick, grooved, and tongued together, and set in Stourbridge clay, leaving a vacancy of four inches, which is called the muffling, all round. There are two furnaces, and about three tons of coals (Hartley's) are consumed in one burning. The progress of the burning is ascertained by looking through an inspection hole with a lens in the side of the kiln.

It should be observed, that the chief difficulty in preparing this material for the several purposes mentioned, is its liability to become distorted in drying and burning: to avoid this, it is necessary that the pieces should be short in proportion to their width; and then the deflections (which in some degree are unavoidable) may be so adjusted in setting as not to be conspicuous; and as the cornice is the part most remote from inspection, the imperfection is the less observable. Further, it may be presumed, that if the use of artificial stone were more general, and occasioned consequently a greater demand for this description of work, some means would no doubt be found for rendering the manufacture more perfect. In order to obtain a fall, or current, in the trough gutters, the bottoms are partially filled up with Portland cement, having the greatest thickness towards the centre, and gradually diminished to the outlets. This, besides facilitating the discharge of the rain-water, serves to strengthen the construction, by covering the joints and fortifying the sides. The colour of artificial stone assimilates tolerably well with Portland or Caen stone, but the texture is liable to have too much of the glare of pottery. Its durability, if properly manufactured, may be deemed almost unlimited, and its economy, if judiciously applied, is a further recommendation; but this involves many important considerations for the judgment and discretion of the architect.

Although these remarks have properly been limited to terra cotta and artificial stone, which, as the designation of the first implies, have to undergo the action of fire, yet, as the latter is now applied to a material prepared by a different process, it may not be irrelevant to make some mention of it upon this occasion. It appears that this substance consists of a concrete, formed with cement and sand, variously proportioned, and the forms are produced from moulds; consequently one of its chief advantages is economy, where numerous repetitions are required. If a nice finish is desired, these productions can be worked up and sharpened by the chisel.

In the course of the conversation which followed, Mr. C. H. Smith said, that the cost of mouldings of terra cotta at St. Pancras Church had been stated to be 5s. per foot, but that, he supposed, did not include the expense of cutting out the stone for its reception. He had done a great deal of moulding, enriched and not enriched, in Portland stone, at the Royal Exchange, for 3s. per foot on the average.*

* The total cost of St. Pancras Church was 70,000*l*.

Mr. Smirke admitted the extreme durability of terra cotta; but his experience had proved, that a perfect continuity of line in terra cotta work could not be obtained.

Mr. Blanchard, a manufacturer, exhibited a piece, which, he said, had that perfect continuity. As a caution, he might say in respect to what had fallen from Mr. Smirke, that those who intended to use terra cotta should give a week's notice to the manufacturer, so that it might not be passed too rapidly through the various processes, but be allowed to dry and shrink regularly.

Mr. SCOTT observed, that of course it was their duty, as architects, to make use of every material which nature had placed at their disposal; and both stone and every other material ought to be employed in such modes, and in such ways, as were legitimate. They were only objectionable so far as they were imitations of other substances; and in the use of plastic materials almost too much honour was given to stone, inasmuch as everything was made to imitate that material. If plastic materials were used, why should they not be used as plastic materials? Terra cotta is a perfectly legitimate substance, and only becomes objectionable when it is turned into an artificial stone. The right solution of the problem was difficult, but he would throw out a hint to those interested in terra cotta—whether they could not introduce enamelled colours into it? It could not then be charged with being an imitation of stone: it would possess exclusively a beauty of which it alone was capable—it would soon have a distinct place and purpose in Architecture—and it would emulate, without imitating, other materials.

ON THE NATURE AND EXTENT OF ORIGINALITY IN ARCHITECTURE.

THE present is evidently a crisis in the career of British architecture. It is probably pregnant with more interest than any former era; and, as in politics, under analogous circumstances, many parties are astir. We have not only our Conservatives and Reformers, but different grades of both, from a point where they blend into each other to a polar opposition. We have our advocates of chains, our apostles of freedom; and, of course, many conflicting theories and speculations are afloat, from which, however, the judicious observer may cull much that is suggestive and valuable. We have been called upon, with great reason and justice, to cease from slavish copying of the works of our predecessors, and to think for ourselves; to plan with reference to our own purposes, in all their peculiarity, and to those alone, and to construct as the nature of our materials and the present state of mechanical science dictate. But man is prone to go to extremes, and there are not wanting those who, like certain reformers of old, would root up all; and that we should not only order the general composition and construction but the decoration also, without reference to foregone art, has by some been assumed as a fundamental axiom of architecture.

This is not a newly-expressed proposition. The opinion seems to have prevailed for years, and frequently finds utterance among amateurs, art critics, and others, who, by their writings or their position, guide the public opinion, that there is something unsound in the practice of using, in any shape, the architecture of another country and time in present English erections; and it is broadly hinted that this is the "accursed thing" in our camp, from which we must be purified ere our art can become truthful and prosperous, and take its place in the general march of improvement.

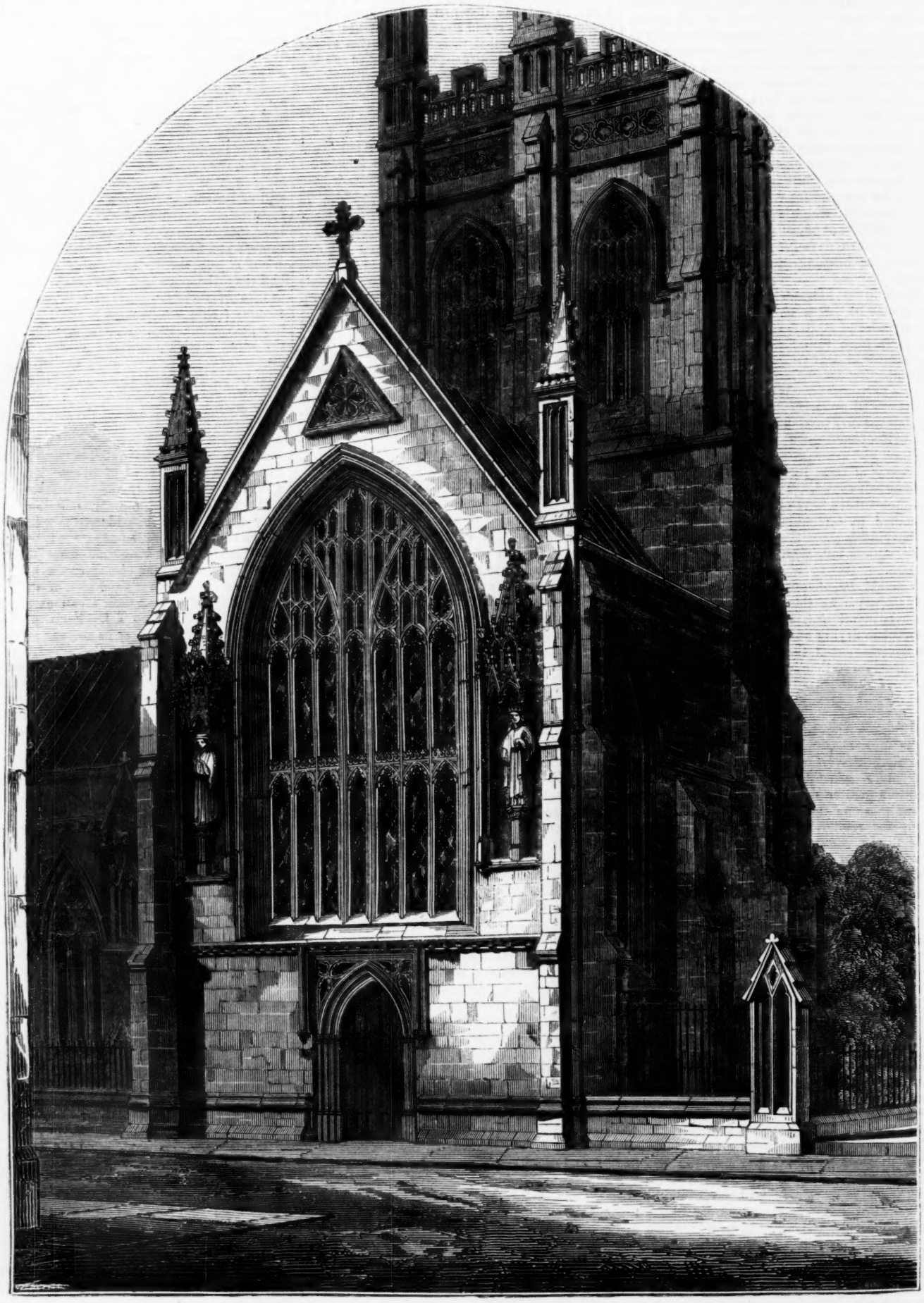
According to theory of these, we must be absolutely independent of precedent, unindebted to any age or country of the world; and, taking only the spider for our model, weave all from our own brain. We have been at one extreme of possible practice, that of slavish copying; this party supposes the true practice to be diametrically opposed to it, and would beckon us to its antipodes. They would cut every tie of sympathy that binds us to the beautiful in ancient or foreign art. On the original, but lean, poverty-stricken, architecture so produced, no ray of the past must shine; Athens, Rome, Parma, Florence, Venice, Palermo, the wonders of ancient art, the miracles of mediæval design, the cathedral splendours of Strasburg, Cologne, Antwerp, York, and Lincoln, the abbeys of Melrose, Tintern, and Westminster, have all existed in vain, for they are not to be at all referred to in this new style.

Against a consummation such as this, however, we must be permitted to urge in remonstrance, that it would be reducing the architect to a condition as to means in which he was never before placed; a condition to which the practice and example of the world, in literature and in every other art and science, is opposed. It is backed by no precedent, supported by no parallel, in the annals of progression: as well might a mechanic refuse the advantage of some scientific discovery, because he is not its author. The Italians had an architecture which was truly their own, and which is universally acknowledged to be such, and yet it was not thus produced. We talk of the Italian style as if it were something entirely distinct, and of their own invention: though many new features originated with them, they were perhaps not aware they had a style. True successors and followers of the ancients, all they aimed at was the application of the art they had left them to the new institutions and usages of society. They strove, however, to advance; they wrought in a spirit of emulation;—Vignola, Palladio, Scamozzi, Serlio, and the other classic architects of the sixteenth century, sought to rival their ancient masters, and therefore aimed in their edifices, and in their writings, to exhibit a sort of abstract of their beauties. They drew not their rules of proportion from any one particular edifice, which, as they well knew, might be defective; but, after selecting the most faultless examples, investigated their laws of beauty, sought the secret of their power, and united the graces and excellencies of all. The Italian orders may therefore be considered as ideal. The Roman architecture comes to us through a purifying process, winnowed from much original corruption. In this spirit working, they enriched the style. The poetry of their souls diffused itself over all their creations, and shed new lustre upon the art. Each new mind enriched it, as must ever be the case, with true art and artists. Genius, the deep-eyed, *will* look beyond the mere element: whatever material he uses, he plans and builds, Amphion-like, by the music of his soul. These great masters, while thus aiming at progression in architecture, had no idea of turning their backs upon the past: the antique orders, with their beautiful and philosophical proportions, were ready prepared to their hands, and, by a diligent study of their æsthetic laws, they, with them, produced works of art that might vie with the ancient models themselves, many of them "bearing the stamp of that rare simplicity," to quote an enthusiastic admirer, "that enchants the mind like an unveiled truth, which appears always easy to those to whom it is disclosed."

What these eminent professors did in Italy has been done elsewhere: Inigo Jones, Wren, Vanbrugh, Sir William Chambers, Gibbs, and others in England; De Lorme, Perrault, the Mansarts, in France, exercised a true and living art; they produced works which have been the admiration of Europe, yet they were not the offspring solely of their own minds; they took the Greco-Romano, or antique elements, working with them according to the great code of truth and nature. The terms "Palladian," or "Italian," which it is common to apply to these works, can refer only to an elementary relationship; the principles of adjustment, which alter not with time and circumstances, and which guided the Greek and Italian designers, they adopted; but they adapted their several edifices to particular local requirements, and used the elements derived from antiquity to express new ideas, and carry out the images of beauty born of their own minds. The architecture I speak of is, therefore, their own, notwithstanding much obligation to Italy. We are indebted to the stately measures and style of Petrarch, Tasso, Ariosto, and others, for a most refining influence upon our early sterling, but homely, verse; yet our property in that verse has never been disputed, nor has our poetry been called Italian.

But whilst referring to these masters, I would not hold up any of them as models of perfection; their best works are far from being such; far from what the antique elements are capable of: we can go beyond them; and, if progress is to be the watchword, we *will* go beyond them. As long as Whitehall, St. Paul's, and Blenheim exist, the names of Jones, Wren, and Vanbrugh, will be held in reverence; but we should not look upon these

MERTON COLLEGE CHAPEL, OXFORD.*

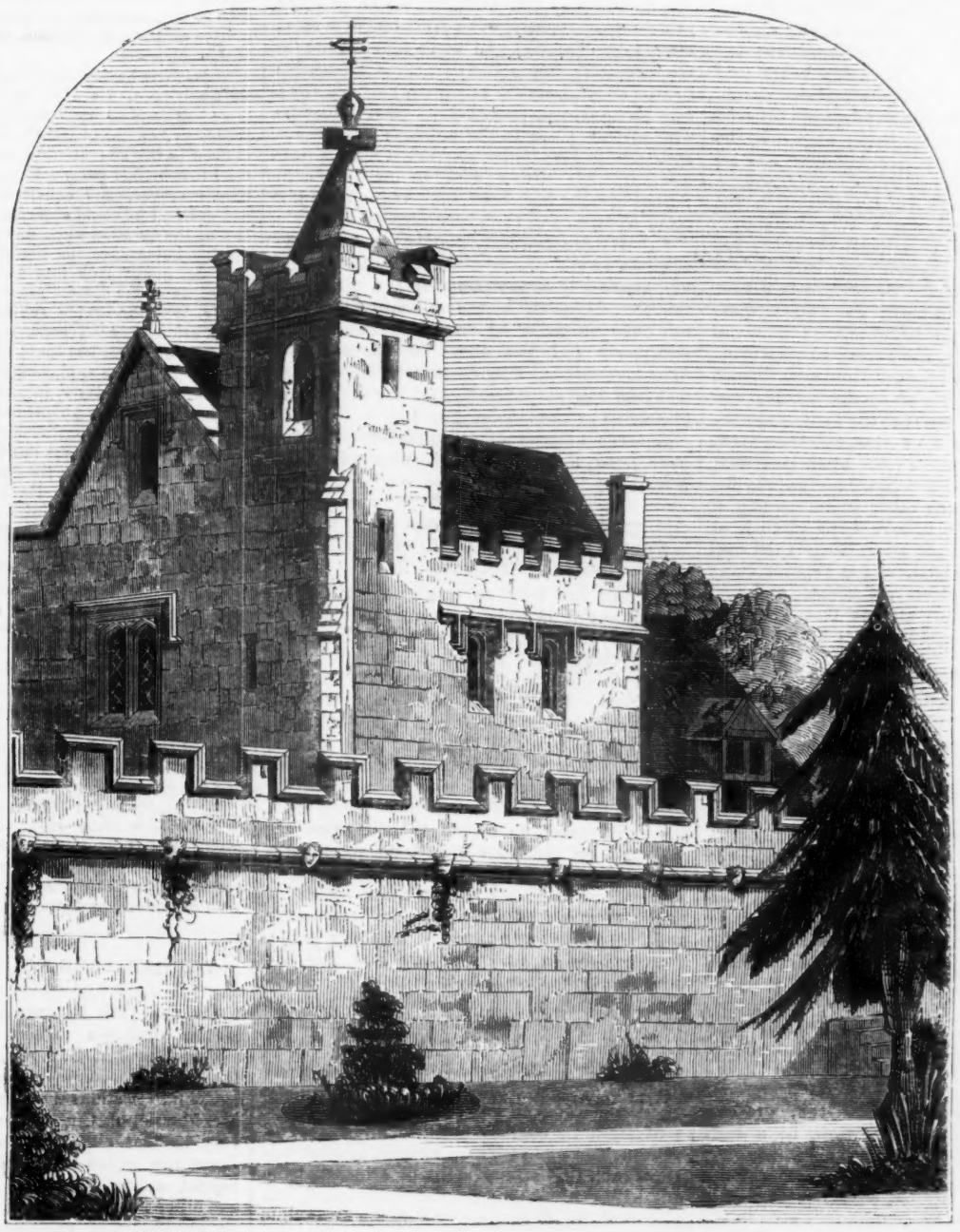


names, especially as regards their application of the antique architecture to ecclesiastical buildings, as the be-all and end-all of Anglo-classic architecture. They did much, and they did it well; they gave us much that is original and estimable; but their chief merit consists not so much in the Anglicism of their style, or beauty of their design, as in the masterly manner in which they met the wants, and satisfied the prejudices of their age, without violating the sacred principles of art; and it is *there* that we must emulate them. The architecture of the period of these three masters is deeply complicated with the social and political movements of their times, and, to those who delight in tracing the more extreme effect of soul-born causes, presents a most interesting subject for contemplation.

Nor is the Italian architecture itself, considered generally, to be looked upon as perfection: it also is far from it: Italy has not fulfiilled her promise at the renaissance. Had the stream of great architects that took its rise with Brunelleschi in the fifteenth century, maintained its full force, as did that of the painters; and had the masters of the sixteenth century found

* See page 301 in our present number.

PART OF THE OLD SCHOOLS, OXFORD.



successors capable of resisting the corrupting influence of Michaelangelo and Borromini, and who would have gone reverentially on, adapting the antique architecture to the changing spirit of the age; or had Jones and Wren, in England,—Algardi, and Ponzio, and Bernini, in Italy,—Perault and the Mansarts, in France,—had the influence upon the eighteenth century that might have been expected;—had Palladio and Vignola been the sole architects of St. Peter's, and other great enterprises proportionately appointed;—in a word, had Italy redeemed the grand promise of the sixteenth century, and England and France of the seventeenth, very different would have been the aggregate results at the present day in Europe.

Of the elements thus embraced by successive schools, are we alone, of the nineteenth century, to be denied the use? What has administered to the magnificence of kings, and been deemed worthy by the Greeks to enshrine their divinities, can we lightly relinquish? The Romans inherited the architecture of the Greeks,—the Italians, that of the Romans: have we, at whose feet munificent Time has laid the works of all three, no lot, no rightful inheritance in them? Had we not, the task before us would have been Herculean indeed, and one of which the Greeks themselves had no experience; for the architecture of the Athenian temples was not absolutely new. The Greeks adopted and adapted from their predecessors, while those predecessors themselves had a foregone art, however rude, to refer to; and Rollin's eulogy upon the Egyptians and Babylonians must be looked upon as unphilosophical, when he attributes to their creative genius, "without any pattern to go by, the production of those stupendous works which have furnished examples for the people of every other country."

But the supposition is utterly baseless. The value of great men in chemistry, in physiology, and in every other operation of the human mind, whether philosophical, scientific, artistic, or literary, consists in rightly using the materials prepared for them by former men. Is the architect, I would ask, to be an exception to this rule? Is he alone to disdain his materials, and call out for a new style? Let him first discover the true principles, exhaust the significancy of the old, before he seeks a new style. "We are as much gainers by finding a new property in the old earth as by acquiring a new planet." Local circumstances have, in all parts of the world, produced corresponding modifications of styles, and the local circumstances of our country, among which we may reckon the accumulation around us of the riches of foregone art, and the able treatises by modern professors on the subject, will influence and characterize ours; and a new style may yet come to us on the stream of time and change, but the attempt to invent a new style is as vain as was the search of the alchymist after the grand Arcanum.*

* To be continued.

ENLARGEMENT OF THE BRITISH MUSEUM.

It is to be hoped that Mr. Hosking's or some other plan for obtaining increased accommodation at the British Museum may be adopted, and speedily carried out. That additional space is required at the Museum cannot be doubted for an instant. The interesting Assyrian remains which have been recently brought to England are treated worse than the Vernon Pictures were, having been literally assigned to a cellar. Besides, we may expect further antiquities from the same and *other* sources, and where are they to be placed? There are many *paintings* in the Museum which are now hung above the glass cases near the ceiling. Surely a room should be provided where these might be seen. But I have not yet alluded to the greatest stigma upon what is ironically called the *British* Museum. You will of course understand to what I refer—the absence of an extensive "Gallery of British Antiquities." There is already the nucleus for such a feature, and if space were provided it would soon be filled.

C. B. A.

Another correspondent, who wishes to know how Mr. Hosking's plan was received by the trustees, says:—

"It is somewhat strange that the architect of the Museum did not so plan the buildings originally as to provide for the contingency—not an improbable one even at that time—of

after-additions being required. Instead of exercising such foresight, which, even if useless, would, at all events, have been harmless, Sir Robert Smirke has done that which must render the trustees very averse to any scheme for making additions that would destroy the inner quadrangle, more attention being paid there to consistency of architectural design and completeness than to the façade itself, for even were the latter very much better than it is, the disparity between the centre building and all the rest, would destroy all grandeur of *ensemble*. Likely enough it will be found out in the course of time—and not a very long time either—that a very great deal of space has been unnecessarily thrown away between the building and the street. Surely it would have been better to have brought the former quite up to the latter,—to have erected an ornamental screen façade, not having an open court behind it, as in the original Montague House, but a covered vestibule or avenue leading immediately from the street to the main building, which, being completely shut out from view, might have been quite a plain brick structure, and upon the ground between the body of the pile and the exterior façade other buildings might, without inconvenience, have been erected, as occasion for them might arise. Such is the case of the Bank of England, whose façades come up quite to the street pavement, and are, in fact, only so many screens that enclose a labyrinth of courts and irregular buildings.

ZETA.

FOREIGN ARCHITECTURAL COMPETITION.

SOCIETY FOR THE IMPROVEMENT OF ARCHITECTURE AT AMSTERDAM.

WE are requested by Mr. Warnsinck to say, on the part of the committee, with respect to the plans for a theatre required in competition in 1848, that eight designs were received, one of which, coming too late and being unfinished, was not taken into consideration,—and that it is the unanimous opinion of the committee, that not any of the designs are entirely satisfactory, according to the conditions named in the programme; so that the prize of 500 florins cannot be awarded. Nevertheless, as the designs No. 3 ("La critique peut faire éviter ce qui est laid; le génie seul peut faire trouver ce qui est beau") and No. 6 ("Spectatum admissi risum teneatis amici") are considered far before the others,—that is to say, No. 3 by the finish of the work, by a well-studied plan, and a distribution which has much merit, and No. 6 by a fine ordonnance both exterior and interior, conceived in a style pure and noble,—the committee offers to the authors of the two designs 300 florins, if they will consent to the notes being opened which contain their names and addresses, and to the yielding up of their designs to the society, who hereby invite them to do so.

THE PROPOSED BUILDING IN HYDE-PARK.

AT a meeting of the Institute on the 24th inst., when Mr. Donaldson placed on the table his lithographic copy of the detailed drawings of the building, for the inspection of members, Mr. Tite asked Mr. D. whether an estimate had been made of the cost, and whether he would state what the amount was? Mr. Donaldson replied that an estimate had been made, but that he could not state the amount. Mr. Tite said that he had had much experience in large roofs of that nature, and he thought the roof alone would cost 95,000*l*. Mr. Donaldson considered that it would not cost anything like that amount. Mr. Mayhew then said, he was sorry, as a member of the council, that he was obliged to say anything against the erection of the building in question, but as he individually felt strongly that a building of such a nature ought not to be constructed on any site where it could not remain for a permanency, he felt it his duty to protest against it: the construction was principally of brickwork and ironwork, and would cost at least 100,000*l*., which enormous sum would be nearly wholly thrown away if it were erected on the proposed site;—that, feeling, as they did, obliged to Prince Albert for the idea, and for his endeavours generally to promote science and taste in this country, he considered that the Institute ought to memorialise His Royal Highness, and guard him against the result anticipated, praying him to obtain another site for the proposed building, where it could remain permanently, or to erect one of a more temporary character and more appropriate for the site. He was going to read a resolution to that effect, but the chairman (Mr. Fowler), said he could not permit it, or allow a discussion to take place on the subject; but he was at liberty to give notice of motion for the next meeting. Mr. Burn said he entirely concurred in what had been said, and after a few other observations the matter dropped.

*** We are decidedly opposed to any alteration as to site: such a determination would amount to a postponement, if not ultimately the abandonment, of the scheme. The plan for building must be modified, brick walls eschewed, and the dome be reconsidered. Which of the building committee individually will take the responsibility of the stability of this dome as at first designed?

A large number of the bills of quantities have been applied for, notwithstanding the price.

ON THE BEST MODE OF ARRANGING SEATS IN A PUBLIC ROOM FOR DISCUSSION AND HEARING.

THERE has been so much said of late on the subject of hearing, both in the House of Lords as well as the new House of Commons, that I think it is a subject well worthy of being discussed and commented on in THE BUILDER. I believe it is now a pretty well acknowledged fact that sound traverses in the same way as waves in still water when a stone is thrown in, viz., in concentric circles; and, another fact, that the angle of incidence is equal to the angle of reflection. Now, Sir, I think it stands to reason that if seats are arranged on the sides of a long room, persons directly opposite to the speaker would hear tolerably distinctly, but those seated at the *farthest end* of the room *very indistinctly* and *imperfectly*, and those in a gallery would scarcely hear at all. I believe that this has been found the case in both Houses of Parliament. Again, if you refer to the form of the Italian Opera House, or the arrangement of the Lecture Room at the Royal Institution,—in the one from the form of the house, and in the other from the general arrangement of the seats,—let a person be in any position, the sound is sent forth in distinct notes to all parts, and without vibration. There appears another advantage in this arrangement of seats, that the speakers can not only be distinctly heard, but also seen, by all parties; and at the same time it admits of a classification as required in the Houses of Parliament. I throw out these suggestions for the able discussion of those who are well capable of dilating on such a subject in a *plain and practical way*, and which might be of great assistance to the profession and others.

W.

BUILDERS' BILLS FOR WORK UNDER THE BUILDINGS ACT.

SABY *v.* MILLS.

THIS was an action brought in the Shoreditch County Court to recover the sum of 8*l*. 10s., balance of 18*l*. 10s. for the building of a workshop adjoining the gable end of the defendant's premises. Mr. Hutson, who appeared as solicitor for the defendant, submitted that the action could not be maintained, on the ground that the building was not in accordance with the statute of 7 & 8 Vict. c. 84, s. 13, and that the district surveyor had not, in conformity with the said enactment, received notice of the intended alteration. Mr. Hutson observed, that it was not to be supposed that the defendant should know anything about the Buildings Act, and urged that it was the duty of the builder to give the required notice. The consequence of such non-compliance with the Act had been that the greater portion of the erection was ordered by Mr. Wharton, the district surveyor, to be pulled down; the plaintiff having violated the Act of Parliament by using wood instead of brickwork. His Honour (Mr. Serjt. Storks) asked what the district surveyor was paid for his services? Mr. Hutson said the fee was 2*l*. 2s., in addition to which the defendant had paid 14*l*. for rebuilding that portion of the erection which was condemned.

Mr. Ashley, solicitor, on the part of the plaintiff, contended that there was nothing in the Act of Parliament to deprive the builder of his right to recover. It might be that a penalty had been incurred; but the work was done according to the specification,—was not proceeded with until the plaintiff had notice from the defendant that he was to go on,—and was performed under the immediate superintendence of the defendant, who had from time to time expressed his satisfaction, had paid a portion of the estimate, and promised the payment of the balance.

These facts having been confirmed by the plaintiff's witnesses, his Honour said, that supposing there had been no such awkward legislation as the Buildings Act, the plaintiff's claim would have been as clear as the sun at noon-day. It was perfectly clear that neither party said anything about the district surveyor, and equally clear that the builder had done all he could according to the specification. But as the question was a novel one, and of considerable importance, he would defer his judgment that he might look into authorities and hear the testimony of the district surveyor.

Mr. Wharton having subsequently attended and given evidence, his Honour said he had looked into a variety of cases, but could find no decision under the Buildings Acts applicable to the present case. In the case of Bensley *v.* Bignold (5 Barn. and Ald. 335), Chief Justice Abbott had decided that a party could not recover in direct violation of the law. The case referred to was one in which the printer's name did not appear in the publication. There was also a case, Foster *v.* Fowler (5 Barn. & Adol. 809), where the plaintiff brought an action for fifteen firkins of butter, which were not marked according to an Act of Parliament of George the Second, in which Judge Littledale had ruled that the plaintiff could not recover. His Honour also cited a similar case, in which Judge Holt held the same opinion, and referred to the case of *Ex parte Dyster* (Rose's Bankruptcy Cases, p. 349), in which Lord Eldon had ruled to the same effect. His Honour observed that although he could find no case precisely in point, he relied upon the decisions laid down by the authorities referred to as bearing upon the principle involved in the present case, and was therefore of opinion that the plaintiff must be nonsuited.

Mr. Ashley hoped his Honour would, under the circumstances, order each party to pay his own costs. His Honour said as it was a case in which legal assistance was required on both sides, he could not comply with Mr. Ashley's request: the costs must follow the verdict.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

ON the 12th instant, Mr. Pettigrew, V.P., in the chair,—a variety of antiquities were exhibited by Mr. G. Lowe, Mr. Pratt, and Mr. L. Jewett.

Communications were received from the Rev. Mr. Massie, of Chester, recording the discovery in that city of a Roman bronze eagle, about two inches in length, and a Corinthian capital, near which were a silver coin of Trajan and other Roman remains;—from Mr. C. Baily, an account and rubbings of rude carvings or marks in some of the window jambs of Goodrich Castle, representing a man hawking, various animals, and an inscription which appears to be the work of Master Adam Hastun,—also an account of a rude and early basin now placed on the south side of the communion table at Tretire Church, Herefordshire, in the place usually occupied by the piscina, but it was very doubtful if it was ever used for this purpose;—from Mr. H. Syer Cuming, on an ivory signet ring of an Earl of Shrewsbury, now in the possession of Dr. Iliff, and which, from the arms of Nevill appearing in the shield, he thought might have belonged to the first earl,—also some observations on carvings in morse ivory.*

METROPOLITAN COMMISSION OF SEWERS.

A PARTIAL response to our queries of last week has been given by Mr. Peto, who explained at the last meeting of the court, that with reference to the southern district of the metropolis, the whole of the plan of drainage may be considered as finally settled, the engineer being now engaged with the estimates. The earliest possible relief was requisite first for these districts. The plans for the Westminster district were also nearly ready. As to the northern, within ten days they were to consider the necessary plans in detail with the

* At the previous meeting, May 22, Mr. Planché exhibited a very interesting collection of tilting helmets and other parts of armour (contributed by Mr. Pratt), which the speaker said was one of the most perfect series of tilting helmets ever produced to any society; and at considerable length he pointed out the characters which distinguish the various ages of this important part of medieval defence.

City Commissioners. It would no doubt be satisfactory to the public to hear that the Commission had determined to carry out one great principle in these plans, namely, the prevention of the pollution of the Thames, by avoiding the flow of any sewage water into it, as far as that is practicable. No sewer at all would discharge itself into the Thames in the southern district from Nine Elms and Battersea down to Deptford, where at first it might be necessary to discharge it into the river, but at a proper time of tide only. Into the details of the other districts he could not then enter, but the same great principle would be carried out. As to Westminster, however, he might mention, that they would be able to drain the whole effectually to a very low level by natural drainage, and without machinery or lifts, which however it would he impossible to do elsewhere north of the river. The Commissioners were anxious to satisfy the public as to their proceedings. The Court had had many valuable hints from the 150 plans under its consideration, but it had not been so much forwarded by them as to be able to make any more definite statement with reference to the northern districts. The expense, Lord Ebrington remarked, would be distributed over a series of years, and the money laid out with the most rigid economy. For every 10,000*l.* borrowed, 700*l.* only would be requisite in the shape of yearly interest and principal—or 7 to 8 per cent. The tender of Messrs. Humphreys and Thirsk for 7,700*l.* for works in continuation of the Victoria-street sewer was then agreed to. In course of his explanation Mr. Peto stated that 580 miles of sewers had now been carefully surveyed and levelled, and that only 100 miles more remained unfinished.——At the previous meeting of the Court Mr. Lawes read its decision on the rating of tythes at Kensington belonging to the rector. He had failed to appeal in time, but still urged as objections to payment that there was no authority but custom for rating tythes, and that this was a rent-charge, properly speaking, and derived no benefit from the works of the Commission. As the case stood, the Court decided that liability to poor-rates was *primâ facie* evidence of liability to sewers rate, and that the rate must continue in force.

A curious scene occurred in the Commons the other day, when Lord Duncan intimated to the House that to his surprise, on calling at Greek-street, to inspect, as a rate-payer, the books of the Commissioners, he had found the minute-book a complete blank, from the 8th February last downwards. Lord Ebrington appeared to look on this as a very venial fault, but the House seemed to be of a different opinion, and so, we suspect, will the country.

Books.

Lincoln's-Inn: its Ancient and Modern Buildings, with an Account of the Library. By W. H. Spilsbury, Librarian. Pickering, 1850.

This is not a mere guide-book, though at first intended to be so. The librarian has found it a task so much to his liking that he has amplified it in its antiquarian details, and especially in his own peculiar department, to which more than a mere moiety of its three hundred and odd pages are devoted. To men of the law this little work must be more particularly interesting, but it contains matter of moment to general readers as well. There is a pretty full account of the old foundations and buildings as well as of the new; but having already had occasion to illustrate this subject both by engraving and by descriptive particulars in The Builder, we shall now only refer such of our readers as desire further information to Mr. Spilsbury's more enlarged details, which are also illustrated by a few vignettes.

Rudimentary Treatise on Warming and Ventilation. By Charles Tomlinson. With Illustrations. Double Part. Weale.

This is a good recast of much of the still little-applied and greatly-needed information on ventilation and warming, contributed both by modern experience and ancient. As to warming, though probably in a more advanced state than ventilation in general practice, we have really not yet reached that point of civilisation and appreciation of comfort to which, as will be here seen, the antiquated Chinese have (*ever*, we had almost said) been accustomed. The double walls and floor flues of Pekin might still be imitated in many cases to advantage in the nineteenth century, as they were by Sir William Chambers in the eighteenth. It is consoling to think, however, that we begin to imitate the "ingenious economy of the Chinese, from which we might often borrow a useful lesson," in their composite fuel of refuse coal for the attainment of much heat with little smoke. These modern ancients have better reason to abide by the example of their forefathers, in some particulars at least, than have we in the imitation of some of the neglectful or ignorant practices of our own progenitors.

"The proper supply of fresh air is denied to the great mass of the population, because builders, who ought to be perfectly acquainted with these things (who ought also to be able to construct chimneys that will discharge their smoke into the air instead of into the room), too often neglect to study the natural laws which chemists and physiologists have placed on a sure basis. We are told that the native porters of Canton are accustomed to balance the load which they carry on a pole upon their shoulders, by means of a large stone at the other extremity of the pole, and that they deemed the suggestion of an Englishman an impertinent interference, who wished them to balance one package by means of another. 'Our ancestors,' they said, 'were very wise men, and they never carried more than one package at a time, and this they balanced by means of a stone; shall we be wiser than our ancestors?' So may a large proportion of our modern builders exclaim, 'Our ancestors were very wise men; they never thought of providing special means for ventilation in rooms and public buildings; shall we be wiser than our ancestors?'"

Miscellanea.

Railway Jottings.—The South Wales Railway was opened from Swansea to Chepstow, on Tuesday week. The only tunnel on the line is one of 800 yards at Newport. The Tawe is crossed by a wooden viaduct, 1797 feet 3 inches in length, and containing 37 spans or trusses; the span crossing the river being 110 feet in length; the others varying from 26 to 27 feet: the span of the centre arch over the river is 102 feet, and the height from high-water mark to under beam 72 feet. In the construction, 2600 loads of wood have been employed, with 350 tons of cast and wrought iron, and 3,000 cubic yards of stone-work. The contract was taken by Mr. Hennet, of Bristol, and has been mainly executed since September last. The engineer of the line is Mr. Brunel. ——A viaduct across the river Blyth has just been opened. It is 30 feet high and 770 long. The contractor was Mr. Cail, of Westoe; and the engineer, Mr. Nicholson, of Newcastle. —— Several locomotives have been shipped at Liverpool for Cadiz, to work on the line from Madrid to Aranjuez.——A lady was burnt to death on the Lyons line of railway lately, while the train was in transit, and her husband in vain shouting to the "guards" for help. The writer of a letter to the *Gazette des Tribunaux*, while pointing attention to this fact, recommends that "a cord should be attached to an alarm-bell, as in Germany, or some other means should be established to enable passengers to have the train stopped in case of accident." How such a system works in Germany we do not know, but the American mode of free access to guards through or along the carriages is certainly far preferable, and the perpetual occurrence of accidents of a very varied description, in this country as well as abroad, most urgently demands the adoption of some such mode of *guarding* against them. The office of a "guard" attached to trains in transit is a complete mockery. An accident of frequent occurrence happened near Montrose last week, in the fall of a child from a carriage door while the train was running at the rate of 25 miles an hour. "The guard being far back among the carriages, the cry of the passengers was not heard for some minutes, during which the train had proceeded to the Colliston station." So it is in hundreds of cases. The guard is one of the most useless appendages to a train, and is almost sure to fail at the pinch; whereas, were it his duty to traverse the train as a watchman, on a proper footboard, or other means of passing to and fro, provided for the purpose, he would really merit the name of a guard, and be of constant use as such in ways innumerable for the palliation and prevention of serious accidents. The Railway Commissioners recommended the adoption of such a precaution in preference to the objectionable system of signals without any freedom of movement for the guards.

Croydon Railway Engine-Houses.—A correspondent suggests that it would be very desirable to convert these rather ornamental buildings into chapels of ease to the parish churches, instead of selling them off by auction to be pulled to pieces. At Forest Hill there has long been a great need for church accommodation, and the adoption of his suggestion, he says, even though removal and rebuilding were necessary, might save the greater expense of erecting a church as proposed. Near the Norwood station a Dissenting meeting-house is all but finished.

Workmen and the '51 Exhibition.—The Manchester Working Men's Committee have issued an address to their fellow-workmen, wherein they say,—"If you are interested in the existence of plenty, so are you interested in the increase of all those inventions, both mechanical and chemical, which tend to produce it. You are therefore interested, and your welfare is consulted by the promoters of the Exhibition, who invite the inventors of improved agricultural implements, and the discoverers of improved modes of tillage, to make public their inventions and discoveries, securing them from appropriation and piracy by others. * * * You of the iron trades in particular are directly interested in every improvement; for an obvious improvement upon a few of our staple machines, mules, or looms, to wit, would set all your idlers to work; and the greater the progress of invention, the greater will be the demand for your labour, and the higher your wages. Other trades may say, and probably do say, that the progress of invention will supersede their labour, and that they are therefore rather interested in keeping back invention than in forwarding it. We know that this feeling does prevail, and although we do not share it, we are bound to respect the feelings of the subjects of it; and to them we say, let us for argument's sake suppose it true. Let us suppose an improved machine introduced in any one trade. If it speed production it cheapens produce, and in an article of general consumption all the world is benefited—except some of the workers in the particular branch improved. Ought the interests of the world to be neglected on account of this derangement? Is it not wiser to seek to remedy the partial evil without combating against the universal good? But we are only supposing the progress of invention to supersede human labour: our belief is, that it ought only to open up new spheres of operation, for nature requires labour from us all, as the inseparable condition of health."

The Iron Works of Scotland.—There are four great iron-fields in Scotland, containing 28 works and 135 furnaces, which were in blast in July 1849. The most northerly field lies on both sides of the Forth, and contains 5 works, and 15 furnaces—Devon 1, Forth 5, Lochgelly 2, Kinneil 4, Carron 3. The largest is that of Clydesdale, containing 15 works, and 85 furnaces—Garscube 1, Govan 5, Clyde 7, Gartsherrie 16, Summerlee 6, Dundyvan 9, Calder 7, Carnbrae 6, Monkland 3, Omoa 4, Coltness 6, Shotts 4, Castlehill 2, Chapel 3, Langloan 6. The most westerly field is that in the north of Ayrshire, containing 4 works and 22 furnaces—Kilbirnie 9, Blair 6, Kilwinning 3, Portland 4. The most southerly field lies on the borders of the shires of Ayr, Lanark, and Dumfries, containing 4 works and 13 furnaces—Lugar 4, Dalmellington 2, Muirkirk 3, Nithsdale 3.—*North British Mail.*

The Medals for the 1851 Exhibition.—Amongst the designs for medals forwarded in reply to the Commissioners' advertisement, and now being exhibited at the Society of Arts, are a few works of considerable merit, but the majority of them are repetitions of one most hacknied type. Nos. 24, 27, 34, 43, and 54, 55, and 56 (in one frame); 104 (3 in one frame): 105 (ditto); 108 and 113 all deserve attention,

PROVINCIAL.—A new church (St. Jude's) is in course of erection at Southsea, from designs by Mr. T. E. Owen. It is Decorated in style, with nave 90 feet by 30; two aisles, each 75 feet by 15; and a chancel 33 feet by 27. There will be a tower at the S.E. angle of the nave, with spire, together 150 feet in height. The structure will be of flint, with Caen stone windows and dressings, and an open timber roof 60 feet high (internally) from floor to point of ceiling. The church will contain seats for 1,000 persons, 340 free.——The chief stone of new Kingswood school, Bath, for sons of Wesleyan ministers, was laid on Thursday week, at Lansdown-hills.——The memorial window in honour of the late Queen Dowager, lately subscribed for at Worcester, &c., is now proposed to be put up at the east end of the new church to be erected at North Malvern.——St. Peter's Church, Bedford, enlarged in 1846, is already too small for the parishioners, and another enlargement is to be made by subscription.——The Church of St. Michael and All Angels, Shelf, consecrated by the Bishop of Ripon on Friday, week before last, has been erected and endowed mainly by the family of Mr. Hardy, late M.P. for Bradford. The design was by Messrs. Mallinson and Healey, of Bradford and Halifax, architects, and is in the Early Geometric Decorated style.——The masons of Blackburn have struck work for an advance of 6d. a-day in their wages.——The Sunderland Docks were opened on Thursday week. The length of the portion just opened is stated at 2,000 feet, average breadth 440; covering in all, 18½ acres. A spacious tidal harbour has been formed. The dock entrance is 60 feet wide; depth of water at quays, 20 feet; in middle, 24 feet. Length of quays in dock, 5,248 feet; in half-tide basin, 1,026 feet. The dock will contain 260 vessels; half-tide basin, 38. The cost of works yet to complete, viz., sea outlet, piers, and tidal basin, is stated at 60,000*l.*; the whole to be finished in about two years.——The Mayor of Norwich, Mr. Woodcock, having presented to the city a turret-clock (illuminated) for the Guildhall, and the council having called for designs for a turret to receive it, five architects (Messrs. Brown, Bunn, Glover, Kitton, and Kerr) submitted designs, and the decision was given unanimously in favour of a design by the latter, who has therefore received instructions to carry out the work.——The *Scotsman* is advocating the establishment of a National Museum in Edinburgh.——A new Dominican friary is in course of erection at Cork. It is Italian, with a campanile 100 feet high.

PURSUIT OF ART UNDER SINGULAR DIFFICULTIES.—A self-taught artist named Carter has recently died at Coggeshall, Essex, where he had for many years resided. He was originally a farm labourer, and by accident lost the power of every part of his body but the head and neck. By the force of perseverance and an active mind, however, he acquired the power of drawing and painting, by holding the pencil between his lips and teeth, when placed there by the kind offices of an affectionate sister. In this manner he has not only whiled away the greater part of fourteen years of almost utter physical helplessness, but has actually produced works which have met with high commendation. His groups and compositions are said to have been "most delicately worked and highly finished." The poor fellow had contemplated the preparation of some grand work for the International Exhibition, but the little of physical life remaining in him was lately extinguished by a new accident. The best of his art-productions would surely be worth a place in the Industrial Exhibition even independently of anything like art-merit.

WESTMINSTER BRIDGE.—The trustees are applying to Parliament for power to erect a temporary bridge, in case the old bridge become so dangerous as to prevent traffic crossing it altogether, till either repaired or rebuilt. The arches, it appears, are still sinking, as they have continued to do during the last six months, or rather for years, at intervals. Sir R. Inglis deprecated the idea of any further attempt to repair the present structure, as the committee appointed four years ago had found that the foundations were originally vicious, and could never be made sound. Yet it was still proposed to repair it at an expense of 70,000*l.*, while, of 360,000*l.* required for a new bridge, 100,000*l.* would be furnished by the Bridge Estate Fund.——In the third report of the committee of the Commons alluded to, dated 5th August, 1846, the first resolution states, "That the majority of the witnesses who have been examined on the point, concur in the statement that the foundation of Westminster-bridge having been originally vicious, the bridge can never be permanently sound." Now, as the majority of witnesses comprised the first civil engineering talent, it is somewhat odd that such opinion should go for nothing; and that in June 1850, without any subsequent report, a Bill should be introduced "to build and maintain a temporary bridge during the repairs of the present structure." It perhaps may be, that as, by the erection of a temporary bridge, an opportunity will be afforded of viewing the new palace from a more distant point, after all, the new structure (for repairing the "vicious" old bridge is out of the question) will start from the wharfs north of the Board of Control, thus carrying a new line of road by Charles-street into St. James's-park, relieving Great George-street of much of its traffic, and leaving it more free as an approach from the Park to the Houses of Parliament, at the same time giving an opportunity for clearing away the mass of old dilapidated buildings lying between Charles-street and Downing-street as a proper site for the Records, being in immediate connection with the State Paper Office, and the principal Government offices. This plan seems to possess many advantages, and the injury done to property in Bridge-street would be comparatively trifling. It is understood the south side of Bridge-street is to be removed for the New Palace-yard quadrangle, the houses on the north side thus becoming far more valuable as private or official residences.—A. Z.

BIRMINGHAM SOCIETY OF ARTS AND SCHOOL OF DESIGN.—The annual meeting of the subscribers and friends of this institution was held on Friday in last week, when the committee's report was read, congratulating the subscribers on the progress and prospects made. The number of students during the previous month was 514, of whom 149 were young women. Appeal was made to the paintings and drawings exhibited on the walls as evidence of progress. The committee also specially noticed a design by one of the students for a table to be electrotyped in silver for Prince Albert and placed in the International Exhibition. The meeting was a numerous one, and various appropriate addresses were delivered and resolutions passed in support of the society and its objects.

SIX HUNDRED NEW CHURCHES.—The commissioners inquiring into the practicability of subdividing the more populous parishes into separate parishes of 4,000 souls, report that an immediate and pressing demand exists for 600 new churches, at a cost of 2,000,000*l.* "Some not needing to be very capacious or expensive, might be estimated at an average of 3,500*l.* each, the total being 2,100,000*l.*" The commissioners propose the sale of advowsons in the gift of the chancellorship, to provide means for proceeding with the work.

IMPROVEMENT IN BLASTING.—A cartridge tube of water-proof paper, made of a conical or sugar-loaf form, has been used at Philadelphia by a Mr. Speakman, for insertion into the usual blast hole, in order to ensure a greater breadth of effect. Rammed in with earth, and fired, the force of the wedge-like mass of powder is said to take a lateral direction, and to yield double execution compared with the old operation of tamping.

STATE PAPERS.—We are glad to learn that at a recent meeting of the Commissioners for Publishing State Papers, they came to the resolution of publishing accurate calendars of the domestic papers in this noble collection during the reigns of Edward VI., Mary, and Elizabeth;—and, moreover, that they have unanimously entrusted the editorship of this national work to Mr. R. Lemon.

THE WEST LONDON LITERARY INSTITUTION, CHELSEA, contemplates the erection of a lecture hall, &c. An eligible site having presented itself, the council propose to raise 2,000*l.* in 400 loan shares of 5*l.* each, to bear interest, and to be in the nature of an equitable charge upon the building itself; such shares to be paid in monthly instalments of 10s. per share, until paid up.

STEEL AND IRON.—In the history of a penny-half-penny foreign file, the *Manchester Courier* gives some curious particulars on the subject of foreign competition in steel and iron. The file was bought in a Birmingham retail shop, though made in Germany. A file-maker in Birmingham said he could not make it for anything like the money. One of the largest file manufacturers in Sheffield "could not possibly make even 1,000 dozen of them for less than 2s. 6d. a dozen, or 2½d. each."——A demand for British iron seems to be springing up in Spain. Madrid is setting the example by sending over for pipes, pumping engines, and machinery, for new water-works about to be established, to supersede the old water-carriers by a plentiful supply from the river Lozoya. Mining implements of British manufacture are also in demand.——The price of iron in the manufacturing districts is likely to be still further reduced, notwithstanding recent limitations of make.

NAMES OF STREETS.—The Genoese have found out, before ourselves, the folly of calling a street New-street; but they have not very wisely corrected it by naming one of their last *Newest*-street,—Strada Nuovissima. Upon this principle they must call the next street they build Newer-than-all-street, or Extremely-new-street, or New-of-the-very-newest-description-street. They seem to have no idea of calling their streets, as we do, after the names of obscure builders and proprietors—a very dull custom and idle piece of vanity, especially in a country that abounds in great names. The streets of a metropolis ought to exhaust the whole nomenclature of great men, national or otherwise, before it begins with bricklayers. —*Autobiography of Leigh Hunt.*

REMOVAL OF A WAREHOUSE.—The wholesale removal of a large warehouse was achieved last week at Cardiff. Messrs. Grant, timber merchants, having lately had occasion to enlarge their premises, found it necessary to remove their bonded warehouse a distance of about one hundred feet. Instead of accompanying the task by taking the whole asunder and shifting it stick by stick, in the old style, the entire pile was the other day at once removed, with great ease, and without extracting a single nail, by raising the whole warehouse on rollers and propelling it by massive chains.

HALL OF ASSEMBLY FOR WEST-END.—A capacious music or assembly hall has been projected for erection in Langham-place, Regent-street, on the site of the carriage repository adjoining All Soul's Church. The cost is estimated at 20,000*l.* to 25,000*l.* including purchase of lease, &c. A plan of the building, by Mr. W. A. Boulnois, architect, has been lithographed for private circulation.

CHOLERAIC EFFECTS OF CESSPOOL AND SEWER EMANATIONS.—At Newport, Monmouthshire, a coroner's jury has just returned a verdict, to the effect that the death of a woman, who was seized with all the symptoms of cholera during the cleansing of a cesspool, "was caused by inhaling the sulphuretted hydrogen gas emitted from the contents of the pool,"—a clear enough index to the nature of one at least of the causes at work in towns with defective sewerage, during the prevalence of cholera in hot seasons.

TENDERS

Delivered to the Metropolitan Commissioners of Sewers for sewers in Westminster, agreeable to advertisement in our paper of the 15th inst.

Johnson	£9,800
Smith and Pierce	9,500
Hill	7,900
Humphreys and Thirst (accepted)	7,800

For the erection of a chapel at St. Mary Cray, Kent; Mr. R. M. Phipson, architect.

C. Townsend (St. Mary Cray)	£4,226
W. Peck	4,012
Cooper and Davis	3,950
W. Higgs	3,945
John Carter	3,892
W. Harding (Fulham)	3,822
J. Faithfull	3,772
G. May	3,715
John Young	3,588
Walker and Soper	3,036
John Goodwin (Lewisham)	2,978
James Barker	2,874

For three warehouses to be erected in Queen-street; Mr. John Griffiths, architect.

Jay	£9,643
Piper	8,790
Ashby	8,749
Locke and Nesham	8,500
Haines	8,358
Trego	8,160
Grimsdell	7,963
Browne	7,457

TO CORRESPONDENTS.

"W. G.," "H. G.," "Suggestive Competitor," "M." "E. A." (declined, with thanks), "G. P. K.," "J. C.," "R. S.," "Playfair," "E. T. and Son," "Stable Paving" (in reply to our correspondent on this subject, the Kamptulicon Factory has been rebuilt in the Greenwich-road), "W. B.," "B. and P.," "B." (Liverpool), "S. S. B.," "J. W. P." (thanks, but we should be unable to afford block), "J. F."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

SOHO CROWN, SHEET, PATENT PLATE, ORNAMENTAL, and PLATE GLASS WAREHOUSE, 26, Soho-square, London.—ALFRED GOSLETT begs to call the attention of the trade to his large and valuable STOCK of the above descriptions of GLASS, which he can offer at the very lowest wholesale prices, delivered either in crates, as manufactured, or cut to size and glazed.

PATENT PLATE GLASS.—HETLEY and CO. beg to inform Architects, Builders, and the Trade generally, that their new Tariff of PRICES for the above is now ready, and will be forwarded on application. A REDUCTION of about 40 per cent. has been made on the usual Glazing sizes.—Sheet, Crown, and Ornamental Window-Glass Warehouse, 35, Soho-square, London.—ROUGH PLATE GLASS.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the low prices of their PATENT PLATE GLASS. BRITISH PLATE, silvered and for glazing, of unrivalled quality and finish. ROUGH PLATE, CROWN, SHEET, COLOURED, and ORNAMENTAL GLASS, in every variety, of the best manufacture, and at the lowest terms. List of prices, estimates, and every information sent on application. THE ROYAL ARMS, richly painted on glass,—size, 86 inches by 58,—well adapted for a public Company's Hall; to be seen at their warehouse, 315, Oxford-street.

THOMAS MILLINGTON begs to inform BUILDERS and the Trade that he can supply them with FOREIGN and ENGLISH WINDOW GLASS, Plain and Coloured, of every description. ROUGH PLATE-GLASS from ¼ inch to 1 inch thick. Glass Pantiles, Slates, &c. &c. White Lead, Paints, Colours, Oils, Varnishes, Brushes, &c.; Milled and Sheet Lead; Lead Pipe from ¼ inch to 4½ inches bore; Solder, Water-closets, Basins, Plumber's and Brass Work of every description, and upon the very best terms. Glass Ornament Shades, Milk-pans, Propagating and Bee Glasses.—Address, 87, Bishopsgate-street Without.
See Priced List Advertisement, Saturday, June 15.

SANDS and EMERY, 2, Robert-street, Bedford-row, beg to call the attention of persons engaged in building to their prices for prepared sashes and frames, doors, shop-fronts, greenhouse lights, &c. &c., full lists of which will be forwarded on application. N.B. Always on hand a large stock of well-seasoned doors, mouldings, &c., of various patterns.

HURWOOD'S PATENT APPARATUS for MOVING and FASTENING WINDOWS, &c.
GENERAL DESCRIPTION.—This invention recommends itself in all its applications by its simplicity, efficiency, and certainty of action, and entirely dispenses with all pulleys, weights, cords, springs, setropes, fastenings, &c. A principal feature in the invention is the application of the screw, or worm working into a wheel or rack, as a prime mover. The apparatus moves with ease and certainty; is very durable, not likely to be out of order; is perfectly secure in every position, and is applicable to conservatories, French casements, folding-shutters, stables, ventilators, skylights, ship scuttles, deck and stern lights, and to all descriptions of windows, and is particularly adapted to public buildings, where security is an important object, as in lunatic asylums.
Further particulars may be had upon application to the Patentee, and also the terms upon which licenses are granted.
*** Illustrative Catalogues may also be obtained from the Patentee, Ipswich, by inclosing twelve stamps, to cover postage.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 34, Commercial-road, Lambeth.

CAST-IRON PIPES, IRON WORK FOR OVENS, &c.
RAIN PIPES, &c.—F. A. TIDDEMAN, St. Ann's Wharf, Earl-street, City, near Blackfriars-bridge, keeps a large stock of Rain Pipes, Heads, Shoes, Elbows, &c., half round and O. G. Gutters, Socket Pipes for Water or Gas, Flanch Pipes, Sash Weights, and other Castings; Iron Work for Bakers' Ovens of every description, fitted complete, to be had in sets or in parts.—Prices equal to all competition. Contracts taken to any extent. Goods landed. A powerful crane.

BUILDERS AND CONTRACTORS.
TARPAULINS for COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore Street, City, Manufacturer, by Appointment, to Her Majesty's Honourable Board of Ordnance.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S Patent Asphalte Roofing Felt, and inodorous Felt for damp walls, sold in rolls 32 inches wide, 1d. per square foot; also Dry Hair Felt, for preventing the radiation of heat, and deadening sound; and sheathing for ships' bottoms, on which the copper lies smooth. Samples, directions, and testimonials sent by post.—CROGGON and Co., 2, Dowgate-hill.

TO THE BUILDING PUBLIC.
FIRST-RATE ORNAMENTS in PORTLAND, ROMAN and other CEMENTS, and PLASTER of PARIS, at reasonable prices, consisting of Vases, Balusters, Capitals, perforated Panellings, Cantilevers, Brackets, Trusses, Wreaths, Scrolls, Masques, Heads, Figures, Friezes, Gothic and other Chimney-Shafts, Soffits, Bed-moulds, Pateras, &c., &c. Centre Flowers from 10 feet diameter downwards. An assortment of Shop-front Trusses always ready for fixing.—HERBERT and SON, Modellers, &c., 42, Parker-street, Drury-lane.

FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire Engines, Gas Companies, Gardening and Agricultural purposes, &c.—J. L. HANCOCK'S patent VULCANIZED INDIA-RUBBER HOSE-PIPES are made to stand hot liquor, and acids without injury—do not become hard or stiff in any temperature (but are always perfectly flexible) and as they require no application of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer Engines, Gardens, Liquid Manure, and all purposes where a perfectly flexible pipe is required. Made all sizes, from ¼ inch bore upwards, and of any length to order. Vulcanized India rubber garden hose fitted with brass-taps, copper branch and roses complete, ready to be attached to pumps, water-butts, or cisterns. Sole manufacturer, JAMES LYNE HANCOCK, Goswell-mews, Goswell-road, London.
N.B. Vulcanized India-rubber washers of all sizes for joints or hot-water and steam pipes, and vulcanized sheet rubber any thickness for all kinds of joints, and other purposes.

BRITISH MUTUAL LIFE OFFICE.— The Public are invited to examine for themselves the advantages gained for Assurers by the plan on which policies are granted by this Office.—Apply to CHARLES JAMES THICKE, Secretary, 17, New Bridge-street, Blackfriars.

THE BRITISH (formerly the Architect's, &c.) ASSURANCE COMPANY, 69, LOMBARD-STREET.
CHAIRMAN.—SYDNEY SMIRKE, Esq. A.R.A.
The Rates for both Fire and Life Assurance are as low as can with safety be taken. The Premiums for Life Assurance made payable to suit the convenience of the assured.—Prospectuses and all particulars may be had at the Head Office, or of any of the Agents. JOHN REDDISH, Manager.

UNITED KINGDOM MUTUAL ANNUITY SOCIETY, 38, Moorgate-street, City. For securing Annuities of every description, by the payment of small periodical premiums, or otherwise.
TRUSTEES.
John Macgregor, Esq. M.P.
James Josiah Millard, Esq.
The Rev. Frederick Pearce Pocock, M.A.
Every information connected with the operations of the Society, also prospectuses and copies of the rules, can be obtained on application at the Office.—By order of the Board.
E. DANIELS, Secretary.

ENGLISH & CAMBRIAN ASSURANCE SOCIETY.—Offices, 9, New Bridge-street, Blackfriars, London. Capital, 150,000*l.* in 12,000 shares of 12*l.* 10*s.* each, with power of increase to one million. Life Policies indisputable.
TRUSTEES.
Stephen Olding, jun. Esq. | Francis Lloyd, Esq.
G. M. Murray, Esq. | W. Whitelock, Esq.
BANKERS—Messrs. Rogers, Olding, Sharp, and Company, 29, Clements-lane.
ADVANTAGES OF THE SOCIETY.
Life Policies indisputable,
Lives "declined" by other offices accepted.
Fees to private Medical Referees of Insurers.
Fire Policies granted for sums adapted to the circumstances of all classes (with a division of profits).
Loans advanced upon Freehold and Leasehold Property, and to Share and Policy holders, upon undoubted personal security.
Agents and Medical Referees wanted in town and country
GEORGE ANGUS, Secretary.

HOUSE DECORATOR and GILDER.— TO ARCHITECTS.—J. M'LACHLAN begs to return thanks to his friends for their patronage during the time he has been in business, and to inform them and the profession generally that he has OPENED PREMISES at 35, ST. JAMES'S-STREET, Piccadilly, as a more central place of business, where he hopes to have their support.
J. M'L., as a practical house-painter and decorative artist, is prepared to make designs, with estimates, for the decoration of rooms; or gentlemen may have their own designs executed with taste and effect. Parisian and English Decorations and Paper-hangings of the newest patterns; Gilding in all its branches, at 35, St. James's-street.

PAPER-HANGINGS.—COTTERELL, BROTHERS, No. 500, New Oxford-street, London, invite the attention of Architects and Builders to their superior and important collection of FRENCH and ENGLISH PAPER-HANGINGS. The stock, which is very extensive, embraces every description of paper-hangings, from the simplest to the most finished in use, and will be found in chaste design and harmonious colouring well adapted to the improving taste of the public, and at prices quite in accordance with the economical spirit of the times. The specimens of panel designs, or decorations for walls and ceilings, are well worth the inspection of persons of taste; by novel arrangement they are fitted so that the finished effect of a room may be seen at a glance; strict attention is paid to architectural propriety and harmonious combinations of form and colour, often so lamentably deficient in this class of designs. The show-rooms are constantly open to visitors, at 500, New Oxford-street, London; and in the west of England, at Bristol and Bath.

PAPER-HANGINGS at E. T. ARCHER'S Manufactory for English, and Warehouse for English and French Paper-hangings, and all materials connected with the trade. The Panelled Decorations are fitted up on the walls of an extensive range of show-rooms, giving at one view a drawing or dining-room furnished fit for occupation.

LIST OF PRESENT PRICES.

Painted marble, granite, and oak papers	1d. per yard.
Superior bed-room papers.....	1d. "
Satin ground papers for bed-rooms, drawing and dining rooms.....	3d. "
Flock papers on grounds, and crimson flock on oak	4d. "
Bronze drawing-room papers	9d. "
Rich gold paper	1s. 6d. "
Ditto and Flock	2s. 0d. "

10,000 feet of gilt mouldings always in stock.
E. T. ARCHER, 481, OXFORD-STREET, LONDON.
January, 1, 1850.

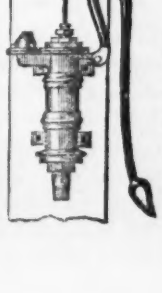
HORNE'S INDIA-RUBBER PAPER for DAMP WALLS is the cheapest and best hitherto offered to the trade, the price being 2*s.* 6*d.* per piece of twelve yards, and its being entirely free from the unpleasant odour arising from gutta percha and pitch papers, and considerably lower in price, is an important desideratum in its favour.—ROBERT HORNE, PAPER-HANGING MANUFACTURER, 41, Gracechurch-street, City, at the same time invites builders and the trade to inspect his extensive stock of NEW DESIGNS IN PAPER-HANGINGS, which, by the aid of powerful machinery, he is enabled to offer at the following unprecedented prices, in stock quantities, for cash only, viz.:—

Stout lining paper	4½d.	12 Pieces.
Superior ditto	6d. and 7d.	
Bed-room papers, in great variety	at 8d.	
An excellent oak paper.....	at 9d.	
Sitting-room ditto, on blended grounds	7d. to 9d.	
Hand-made marbles	1s. 0d. to 1s. 6d.	
Good satin papers	1s. 9d. to 2s. 0d.	
Rich flock papers (by a new process) ..	2s. 0d. to 2s. 6d.	
Hand-made granites.....	10d. to 1s. 0d.	

Every novelty in French and English panelled decoration always on hand; also excellent imitation of fancy woods, superior to any hitherto manufactured on paper.
N.B. Patterns sent into the country, showing the style and quality of the above, on receipt of two postage stamps, and the goods despatched with promptitude on receipt of a remittance to the amount of the order given.—Folding screens in great variety, wholesale and retail.—To be obtained only at HORNE'S Wholesale and Retail Establishment, 41, Gracechurch-street, London-bridge.

TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS.
PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, kept for Hire.
BENJ. FOWLER (late of 63, Dorset-street), removed to the new Factory, Whitefriars-street, Fleet-street.

TO BUILDERS AND PLUMBERS.



THE attention of the Trade is called to
JOHN WARNER & SONS' PATENT VIBRATING STANDARD PUMP,
which is recommended for the simplicity of its construction, and the ease with which it works.
By the introduction of the vibrating standard the cumbrous carriage and expensive slings and guides are unnecessary, rendering the price considerably less than pumps made on the old plan.
Beer and Water Engines for raising fluids from a depth not exceeding 28 feet; also, Garden Engines constructed on the same principle.
JOHN WARNER & SONS,
8, Crescent, Jewin-street, London, Manufacturers and Patentees.

TO BUILDERS, CONTRACTORS, &c.
GREY-STONE LIME, of the best quality, may be had at Whitehall-wharf, Cannon row, Westminster, at 7*s.* 6*d.* per yard; or at Hanover-wharf, 53, Edward-street, Regent's-park, at 8*s.* 6*d.* Barges will be loaded at the Works, at Halling, at 5*s.* 6*d.* per yard; or delivered alongside any wharf in London at 6*s.* 6*d.*—Apply to CHARLES FORMBY, Esq., Lime Works, Halling, near Rochester; or Mr. TREMAIN, 32, Edward-street, Regent's-park.

ATKINSON'S CEMENT.—This Cement has hitherto been manufactured in Yorkshire, and, through long detention at sea, has often proved stale and unfit for use on its arrival in London. By the arrangement now made, the Cement will be manufactured in London, and thus presented to consumers in a fresh and genuine state, by the sole Agents, J. B. WHITE and SONS, Millbank-street, Westminster.

KEENE'S and PARIAN CEMENTS, for internal stucco, are employed very advantageously in place of wood for skirtings, architraves, and panel mouldings, and for in-door flooring, instead of stone. The peculiar properties of PARIAN Cement allow of its being painted or papered upon within a few hours of its application, and thus render it an important substitute for common plastering in those cases where expedition and beauty of finish are essential.—J. B. WHITE and SONS, Millbank-street, Westminster, Patentees of KEENE'S Cement, Licensees of PARIAN Cement.

PORTLAND CEMENT, as manufactured by J. B. WHITE and SONS, possesses all the properties of the best Roman Cement, but has the advantage over that material of wholly resisting frost. When used as a stucco it does not vegetate or turn green in damp situations, and requires no colouring. Employed as an hydraulic mortar for brickwork, it carries four to five measures of sand to one of cement, and is proved by trial to become harder and stronger in these proportions than Roman Cement with but one measure of sand. This superior connecting power, combined with its eminently hydraulic properties, point it out as the fittest material for building sea and embankment walls, the lining of reservoirs, cisterns, and baths, and for all those purposes where strength and a perfect resistance to water are required.
Manufacturers—J. B. WHITE and SONS, Millbank-street, Westminster, and 36, Steel-street, Liverpool.

PORTLAND CEMENT, solely MANUFACTURED by WILLIAM ASPDIN, Son of the Patentee.—Messrs. ROBINS, ASPDIN, and Co. request reference to No. 296, page 491; and also Nos. 294 and 295, pages 343 and 351 of "The Builder," for accounts of EXPERIMENTS on the strength of Portland Cements, whereby the great superiority of their Cement is manifest. This Cement has been proved for upwards of twenty years in the Thames Tunnel to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, cuvdate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also at their Depôt, 48, Hanover-street, Liverpool.

THE PARIAN CEMENT, for INTERNAL STUCCO, which you supplied at Messrs. J. & R. MORLEY'S warehouses and dwelling in Wood-street, Gresham-street, in the City, has been used throughout the premises, in every story; altogether about ten thousand yards superficial, chiefly upon recently built walls, and a small portion upon timber partitions, and that with the most perfect and satisfactory result. I feel it also necessary to observe, that the plasterer's work was almost invariably followed up on the next day by the painters, thereby enabling me to have the buildings complete in the shortest possible time, both for business and for the occupation of the establishment. I am, therefore, of opinion, that the use of this new material is a most valuable feature in building operations, and fully justifies that which I was given to understand, viz., that it was an extraordinary material. I think it right to mention that I am at the present time having a great extent of similar work executed at another range of buildings, where time and the quality of the work are of the utmost importance.
(Signed) JNO. WALLEN, Architect, London.
To Messrs. Chas. Francis and Sons, Manufacturers, Nine Elms.

MARTIN'S PATENT
FIRE-PROOF AND ORNAMENTAL CEMENT,
APPLICABLE FOR
ALL INTERNAL PURPOSES WHERE PLASTERING IS REQUIRED.
This invaluable Cement has now been before the public so many years, and obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. Messrs. STEVENS and SON however feel called upon to observe, that from the greater extent of surface which a given quantity of MARTIN'S will cover, as compared with other Cements for internal use, there will be found a gain of 16½ per cent. in material, full 7 per cent. less in price, with an additional saving in labour of 10 per cent., by its allowing about forty minutes for working, being less than one-tenth of the time of other cements of a similar nature, therefore worked with greater facility, making together the enormous saving of full THIRTY-THREE PER CENT.; its advantages therefore cannot admit of doubt. Specimens, showing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement, in any quantity, obtained of Messrs. STEVENS and SON, at their Plaster and Cement Works, 186, Drury-lane, London.—Manufactory, Derwent Mill, Derby.
N.B. This Cement will receive paint or paper in a few hours after the completion of the work by the plasterers.

JOHNS and Co.'s PATENT PERMANENT STUCCO WASH, CEMENT, and PAINT.—The attention of the trade and the public generally is solicited to these very excellent and well-known materials, which, for their beauty, durability, imperviousness, and cheapness, are unequalled. THE PERMANENT WASH, as a substitute for common lime-wash or water-colour, is an article which has long been wanting for stucco and brick-work; it is of a stone colour, but may be tinted to any other; is perfectly dry in twenty-four hours; will not wash off; is very little dearer than the common washes; and, being a non-absorbent, is admirably adapted for railway stations, union workhouses, schools, barracks, prisons, &c. One cwt. is sufficient to cover, with two coats, 250 square yards. THE CEMENT, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water. The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

BLUE LIAS LIME, PLASTER, &c.
THOMAS FREEN and CO. having con- nected with their ROMAN CEMENT WORKS an extensive Manufactory of GROUND BLUE LIAS LIME and PLASTER of PARIS, beg to call the attention of Builders and others to the very superior quality of these articles, which they are prepared to supply upon the most reasonable terms.
WORKS—Tuscany Wharf, Regent's Canal, Kingsland-road, London.
DEPOTS—Lee's Wharf, Paddington; and Phœnix Wharf, Greenwich.
N.B. Grey and Chalk Lime, Paving Bricks, Tiles, Artificial Stone, Plasterers' Hair, &c. &c.

BELL'S PATENT LIQUID CEMENT is ready for use, and only one-eighth the cost of oil-paint. For beauty it is pre-eminent, giving the exact appearance of FINE CUT STONE. Can be used at once on fresh Roman Cement, or any other plastering, and will protect the walls as well as Roman Cement. In casks of 1, 2, and 3 cwt., at 8*s.* 15*s.* and 21*s.*, casks inclusive.
PATENT MINERAL PAINTS,
Invaluable for cheapness, beauty, and permanence: not half the cost of other paints, always ready for use, will keep good for years, and therefore well suited for exportation. Brilliant black, 2*s.*; rich browns, 2*s.* 9*d.*; greens and light colours, 4*s.* per gallon.
G. BELL and Co., 2, Wellington-street, Goswell-street.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1½ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash stiles, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

FLOORING.—ALFRED ROSLING begs to inform his customers and the trade generally, that he has again very materially REDUCED the PRICES of his DRY FLOOR BOARDS, of which he has in stock an extensive assortment. To purchasers of a quantity of freshly prepared boards A. R. is able to offer a great reduction upon his currentprices, to avoid the expense of piling away in the drying sheds. Mouldings in great variety, and prepared in a very superior manner.—Southwark-bridge Wharf, Bankside, October, 1849.

THOMAS ADAMS, Mahogany and Timber Merchant, Bermondsey New-road, Southwark, near the Bricklayers' Arms, is SELLING SEASONED FLOORING at LESS PRICES THAN ANY ADVERTISED; also matched boards and mouldings prepared from the very best material, and in a superior manner. Cut deals and scantling of every dimension; mahogany, cedar, rosewood, wainscot, elm, beech, oak, &c.; pantile, oak, and fir laths; wheelwrights' goods. All sawn and prepared goods (except timber) delivered free of expense. Sawing charged at mill prices. Very extensive drying-sheds.
N.B. English timber taken in exchange for foreign.

PRESENT PRICES of SEASONED FLOORING, prepared by improved Machinery. Net cash.

1¼ in. yellow, per sq.	20s. 0d.	1 in. spruce, per sq.	13s. 0d.
1 " " "	17s. 6d.	¼ " " "	11s. 9d.
1¼ " " "	14s. 9d.	⅛ " " "	10s. 6d.

Widths measured after being wrought. Quantities not less than thirty squares delivered within 5 miles free.
SAMUEL ARCHBUTT and CO., Timber Merchants, Sawing and Planing Mills, King's-road, Chelsea.

FOR TIMBER and DEALS apply to SIMMS and Co., 73, Old Broad-street, City, Shipowners and Importers.—N.B. Contractors, Builders, Timber Merchants, and Manufacturers promptly supplied by rail, canal, and coast-wise, in every part of the kingdom.—Direct from the docks, and wholesale only.

MUIR'S PATENT — PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

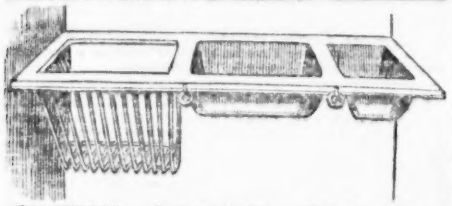
TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle, Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

GENERAL WOOD-CUTTING COMPANY.—SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, between the Suspension and Waterloo Bridges. SAWING and PLANING in all their branches executed with the greatest despatch and punctuality. A large Stock of seasoned and beautifully WORKED MOULDINGS, consisting of upwards of 100 different patterns kept constantly on hand; also an extensive assortment of dry prepared FLOORING BOARDS, of all qualities and at reasonable rates.

PHILLIPS, ALLCARD, and CO.'S IMPERIAL DEAL SAW-MILLS, WENLOCK-ROAD, CITY-ROAD, beg to invite the attention of builders, carpenters, and the trade, to their well selected stock, consisting of a large assortment of TIMBER, DEALS, PLANKS, and BATTENS, of every description, and thoroughly seasoned. They also have constantly on hand, and ready for immediate use, white and yellow prepared FLOORING BOARDS of all thicknesses, and matched lining, cut and planed to a parallel breadth and thickness. And they are enabled to offer all their goods at very moderate prices.

LADDERS, BARROWS, &c. for SALE or HIRE.—G. ELL invites the attention of Builders, Contractors, Decorators, and the trade generally, to the large Stock of Ladders, Barrows, Machines, Trestles, Steps, &c., he has always on hand in every way suited to their various purposes. Excavators barrows at 9s., 12s., and 14s. per barrow complete. Ladders, Steps, &c. equally low. For particulars see printed lists, which can be had upon application.—Manufactories, Nos. 3 and 6, Tottenham-court, New-road, St. Pancras.



COTTAM and HALLEN, 2, Winsley-street, Oxford-street, beg leave to draw attention to their new and improved patterns in STABLE FURNITURE. The manger, rack, and water trough are placed in a line together, and may be had either plain, galvanized, or enamelled. Castings and wrought-iron work of every description, at the lowest scale of prices. Underground pipe, 5s. 9d. per cwt. Estimates upon application.
COTTAM and HALLEN, 2, Winsley-street, Oxford-st., London.

TO BUILDERS AND OTHERS.

HART and SONS, Wholesale and Manufacturing Ironmongers, Nos. 53, 54, and 55, Wych-street, Strand. Established 1819. Proprietors and sole Manufacturers of PITT'S PATENT SELF-ADJUSTING DOOR FURNITURE and SPINDLES, and Manufacturers of Dr. ARNOTT'S VENTILATING CHIMNEY VALVES.
HART and SONS solicit the attention of Builders, House Decorators, Smiths, Bell-hangers, &c. &c. to their extensive and well selected stock of DOOR FURNITURE in every suitable material, *en suite* with finger-plates, bell-pulls, levers, &c., and also to their
LOCKS and LATCHES in mortice, rim, drawback, iron gate, cabinet &c., of all qualities, including Barron's, Bramah's, Chubb's, and Pitt's Patent.—To their
GENERAL IRONMONGERY, wrought and cut nails, screws, hinges, bolts, &c. &c.
BRASS FOUNDRY—Bell cranks of all descriptions, cornice poles, picture rods, skew door handles, desk and hat rails, window guards, Espagniolette bolts, &c. &c.
WINDOW FITTINGS of all kinds, including brackets, rods, arms, sliding sockets, trays, &c. &c.
DOOR SPRINGS and HINGES, including Redmund's, Smith's, Collinge's, Gerish's, and Cotterell's patents.
WINDOW BLIND FITTINGS of the most approved principle.
LEA'S RACK BOLT MORTICE LOCKS, for which they are AGENTS, as well as for all inventions of merit as soon as perfected.
HART and SONS, aware that the practice of publishing NET price-lists is injurious to the interests of the trade generally, are unwilling to follow it, but at the same time they beg to assure their friends that their prices shall be equally as low as those of any other respectable house.

TO ARCHITECTS AND BUILDERS.

CHUBB'S WROUGHT-IRON and FIRE-PROOF DOORS and FRAMES, for strong Rooms. A large stock of the above, of all sizes, made in the best manner, and of different strengths, fitted with CHUBB'S PATENT DETECTOR LOCKS, throwing from two to twenty bolts, constantly on sale, at very moderate prices. FIRE-PROOF SAFES of every size, and Patent Detector Locks and Latches for all purposes.—C. CHUBB and SON, sole Manufacturers, 57, St. Paul's Churchyard, London.

ESTABLISHED 1795.

E. TANN and SONS' PATENT RELIANCE LOCK, and CHEMICAL RESISTING FILLED FIRE-PROOF IRON SAFES, CHESTS, &c.—E. TANN and SONS have great pleasure of announcing the complete success of the Public Test before the Mayor and hundreds of persons, at the Islington Market, Liverpool, on Thursday, June 13th, when the Safe completely resisted the influence of a large fire—of wood and coals—not less than forty hundred weight, for three hours, and afterwards for an additional hour, preserving its contents.
N.B. Part of the contents were a 50*l.* bank note, a 5*l.* ditto, a gold and silver watch. Manufactory, 1, Hope-street, Hackney-road, London. The Trade supplied with every article in the above line at low prices, not to be equalled.

HOT-WATER APPARATUS.—The attention of architects, builders, and others is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, staircases, conservatories, forcing and greenhouses, manufactories and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency.
BENJAMIN FOWLER, late of 63, Dorset-street, removed to the new factory, Whitefriars-street, Fleet-street.

IMPROVED KITCHEN RANGES.—BROWN and GREEN'S PATENT KITCHEN RANGE is the most economical, cleanly, and convenient; it is a certain cure for a smoky chimney. B. and G.'s Improved Open Fire Range, with patent self-acting oven and back boiler, is a universal favourite. The same may be said of their new Self-acting Cottage Range, the price of which, with oven and boiler, is only 18s. 6d.—Prospectuses, &c., forwarded (post-free) on application to BROWN and GREEN, Luton, Beds.

TO BUILDERS, CARPENTERS, &c.—The undermentioned are the PRESENT PRICES of IRONMONGERY, at YOUNG'S, 194, Oxford-street. Every other article equally low. Orders executed upon receipt of remittance or a respectable London reference.

	2	2½	3 Inches.
Cast Butts.....	5s. 3d.	7s. 6d.	11s. per 6 dozens.
Cut Clasp.....	5d.	7d.	1s. 2d. 1s. 8d. per
	4d.	6d.	10d. 20d. per 1,000.
Nos.	3	4	5 6
Patent Line	6s.	7s. 3d.	9s. 10s. 9d. per gross.
	2	2½	3 Inches.
Rain Pipe	9½d.	10½d.	1s. 1d. per yard.

GRICE'S IRONMONGERY, STOVE, and RANGE WAREHOUSE, 18, Walworth-road, London.
Elliptic Stoves, with Double Backs, 2½d. per inch; Register Stoves, 5d. per inch.
3-feet Self-acting Cottage Ranges, Oven and Back Boiler, 35s. each.
Cut Sheet Floor Brads, 11s. 9d. per cwt.

Cut Clasp Nails.

15s.	14s. 6d.	14s.	13s.	12s. 6d. cwt.
1½	1½	2	2½	3 in.

1-inch Cut Lath, 13s. 9d. per cwt.
6-inch 2 bolt Rim Locks, with Scotch Springs, best patent furniture, 14s. 6d. per dozen.
Improved Bow Latches, 6s. 6d. per doz.
HOT WATER APPARATUS for heating greenhouses, &c., on improved principles, being the cheapest heat known.

TO BUILDERS and CARPENTERS.—Elliptic Stoves, double backs, 2½d. per inch.
Register Stoves, 6d. 6½d. 7½d. per inch.
Self-acting Ranges, with Circular Ovens and Back Boilers, best wrought bars and bright fittings—
3 ft., 2*l.* 18s. 3 ft. 6 in., 3*l.* 7s. 4 ft., 3*l.* 18s.
3-feet Cottage Ranges, with Oven and Back-Boiler, 35s. each.
3-feet self-acting ditto ditto, 30s. each.
Air Bricks, 3s. 6d. per doz. Sash weights, 5s. per cwt.

Best Patent Cut Clasp.

4½d.	5d.	7d.	10d.	1s. 3d.	1s. 8d. per 1,000.
3d.	4d.	6d.	8d.	10d.	20d.

Best Sheet Floor Brads, 12s. per cwt.
Best Town Glue 33s. Do. Scotch, 52s. per cwt.

Best Patent Sash Line.

1	2	3	4	5	6
4s.	4s. 6d.	5s. 6d.	7s.	8s.	10s. 6d. per gross.

At F. R. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 35, Chiswell-street, Finsbury-square.
Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.—Warehouse closes at 7 o'clock.

TO BUILDERS, CABINET-MAKERS, and OTHERS.
Best Cut Sheet Flooring Brads, 12s. per cwt.
Fine Cut Clasp and Rose.

15s.	14s. 6d.	14s.	13s.	12s. per cwt.
1½	1½	2	2½	3 inch.

Cross Garnet Hinges, per dozen pair.

2s. 9d.	3s. 3d.	4s. 3d.	5s.	6s.	8s.
10	12	14	16	18	20 in.

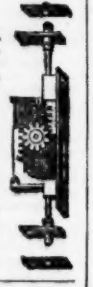
Best Bright Tower Bolts, per doz.

1s. 3d.	1s. 7d.	2s.	2s. 6d.	2s. 10d.	3s. 3d.	3s. 7d.
3	4	5	6	7	8	9 in.

Iron Rain-water Pipe.

9½d.	10½d.	1s. 1d.	1s. 5d.	1s. 8d. per yard.
2	2½	3	3½	4 inch.

Best London Glue, 32s. per cwt.
Cast Lath Nails, 10s. per cwt.
Air Bricks, 3s. 6d. per doz.
Hooping for bond, 8*l.* 10s. per ton.
Sash Weights, 5s. per cwt.
TERMS—NET CASH.
A price-list may be had on application.
A. L. PFEIL and Co.,
Wholesale Ironmongers, Brass Foundry and Nail Warehouse,
5 and 6, Broad-street, Bloomsbury, London.
AGENTS FOR LEA'S PATENT MORTISE LOCKS AND BOLTS.



TO BUILDERS AND CARPENTERS, &c.

J. H. BOOBBYER and CO., late Sturch and Boobbyer, Ironmongery, Brass Foundry, Nail, and Tool Warehouse, No. 14, Stanhope-street, Clare-market, London, for the supply of Carpenters, Builders, Cabinet-makers, Upholders, &c., at wholesale prices.

Best Cut Sheet Flooring Brads, 12s. per cwt.
Fine Cut Clasp and Rose.

15s.	14s. 6d.	14s.	13s.	13s. per cwt.
1½	1½	2	2½	3 inch.

Best Bright Tower Bolts.

1s. 3d.	1s. 7d.	2s. 2d.	2s. 6d. per dozen.
3	4	5	6 inch.

Best Patent Sash Line.

4s.	4s. 6d.	5s. 6d.	7s.	8s. 6d.	10s. 6d. per gross.
No. 1	2	3	4	5	6

Cast Lath Nails, 10s. per cwt. Sash Weights, 5s. per cwt.
Air Bricks, 3s. 6d. per dozen.

DR. ARNOTT'S VENTILATORS.
11 by 8 inches ..... 5s. each.
16 by 9 " ..... 8s. "
An assortment in Brass, Bronzed, Gilt, &c.
An extensive stock of Mortise Locks, Drawback Locks, Iron Rim Locks, and Latches, of every description, at very reduced prices; also Door Furniture, in china, amber, crystal, ivory, ebony, buffalo, horn, brass, &c., with Finger-plates, Bell-pulls and Levers *en suite*.
B. and Co. are the inventors of SHIFTING BOLT MORTISE LOCKS, &c., so universally approved of.—Established nearly 200 years, for the supply of goods from the best manufactories at the lowest prices.

CHURCH BELLS.—BOWEN and CO. beg respectfully to inform Architects, Builders, Railway Companies, Merchants, and others, that they can be supplied with CHURCH, RAILWAY, PLANTATION, TURRET, SHIP, FACTORY, and all other descriptions of BELLS, of a superior metal and tone, at the lowest possible prices, at their Foundry, Red Lion-street, Clerkenwell.
N.B.—All kinds of heavy Brass and Gun-metal Castings.

PROTECTION from FIRE, and GREAT ECONOMY in BUILDING.—A pamphlet, descriptive of the method by which both these important objects are secured, may be obtained on application to Messrs. FOX and BARRETT, 46, Leicester-square.

IRON FOUNDRY, 80, Goswell-street (late of Brick-lane, St. Luke's).—J. J. JONES having made great additions to his STOCK of PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns, Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.
BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

TO GAS AND WATER COMPANIES, ENGINEERS, AND CONTRACTORS.

ANDREW M'LAREN & Co., Ironfounders, STEEL YARD WHARF, UPPER THAMES-STREET, have always on hand a large STOCK of SOCKET PIPES of all sizes, with the usual connections. Retorts, columns, girders, and all description of castings contracted for.
Their stock of goods for GENERAL IRONMONGERS is unequalled for variety and lowness of price: comprising, range, register, and elliptic metal and stoves, rain-water pipes, O. G., and half-round guttering, sash-weights, railing bars, panels, bakers' oven work, sink traps, air bricks, water-closet metal, &c. &c.
Printed list of prices, and books of drawings for the use of ironmongers, forwarded on application.

TO BUILDERS, IRONMONGERS, AND OTHERS.

RAIN-WATER PIPES, O G and Half-round Gutters, Sash Weights, Railing Bars, Air Bricks, &c. J. JONES, Iron Merchant, Iron-bridge Wharf, No. 6, Bankside, has the largest stock in London of the above and other castings, of the very best quality. Also, cast-iron pipes for gas, water, or drainage; bends, tees, &c.; flange and hot-water pipes, with all the usual connections; lamp-posts and retorts, stable fittings, pig-troughs, &c. &c.
Prices will be forwarded on application, which will be cheaper than any other house in London.
J. JONES, IRON MERCHANT, IRON-BRIDGE WHARF, No. 6, BANKSIDE, LONDON, near the Southwark Iron Bridge.

PATENT GALVANIZED IRONWORKS, MILLWALL and BIRMINGHAM.
Office, 3, MANSION-HOUSE-PLACE, LONDON.
The undersigned having concluded an arrangement with the Galvanized Iron Company for the transfer of the above Premises, with the Plant, Goodwill, &c., of the Patent Galvanized Iron business, beg to apprise architects, builders, and the trade generally, that they are prepared to supply Patent Galvanized Iron, or to Galvanize articles sent to them for that purpose, in any quantities.
Prices and particulars can be obtained at their office, as above, or will be forwarded post free, on application.
London, June 1st, 1850. TUPPER and CARR.

PATENT GALVANIZED IRON. TUPPER and CARR.
The particular attention of Architects, Builders, and others is called to this article, as the one best suited for roofing, guttering, spouting, water or gas pipes, railings, window-sashes and guards, blinds, skylight frames, chimney-cowls, cisterns, screws, nails, chains, hooping, &c. &c. Rust is effectually prevented. Patent Galvanized Iron always in stock, and goods galvanized in any quantities.
N.B. The New Palace at Westminster, and the building-sheds in all the dockyards, are roofed with Patent Galvanized Iron.—Office, 3, Mansion House-place.—An allowance to the trade.

IRON ROOFING WORKS, BIRMINGHAM, late of Southwark.
Office,—3A, MANSION-HOUSE-PLACE, LONDON.
JOHN H. PORTER,
PATENTEE
Of the Corrugated Iron Beams, Girders, and Fire-proof Floors; MANUFACTURER OF IRON ROOFS AND BUILDINGS, Chiefly of
THE PATENT GALVANIZED IRON.
This material has been employed by J. H. PORTER for several years past in the construction of Iron Roofing for RAILWAY STATIONS and DOCKYARDS, at home and abroad; FARM BUILDINGS, FACTORIES, GASWORKS, WAREHOUSES, &c.; SUGAR-HOUSES, MEGASS and COFFEE-SHEDS, STORES, DWELLINGS, and MARKET-PLACES, in the East and West Indies, China, at the Cape of Good Hope, and in other parts of the world; Iron-bar and Strained-wire Fences, Sheep and Cattle Hurdles.

A. WHYTOCK, 494, New Oxford-street, London, begs most respectfully to inform Builders and the public, that he has removed to the premises as above, where he has on sale a complete variety of BATHS, all manufactured of Morewood and Rogers's Patent Galvanized Tinned Iron. The accompanying sketch represents a Plunging, a Shower, and Springing Bath combined, which A. W. has secured by registration.

It costs no more than the old-fashioned Shower Bath, while from its simplicity it is free from liability of getting out of order.
A. W. continues to supply
PLAIN AND CORRUGATED ROOFING;
and Houses made of the Patent Metal, for
CALIFORNIA AND THE COLONIES.
WORKS, 5, QUICK-SET-ROW, NEW-ROAD.

ZINC, from the VIEILLE MONTAGNE MINING COMPANY, is the purest known, free from alloy of iron, lead, or sulphur. It is supplied in spelter for brass founders, &c., and in sheets for ship sheathing and roofings of all kinds, and nails of all dimensions. It may be had at the following Agents', who have always a large stock in hand:—
London—Messrs. Charles Devaux and Co.; Mr. Charles Jack
Mr. William Skirrow.
Birmingham—Mr. John Barwell.
Liverpool—Messrs. E. Zwelchenbart and Co.
Manchester—Messrs. Richard Johnson and Brother.
Leeds—Messrs. J. G. and T. Heaps.
Hull—Messrs. J. Parker and Sons.
Newcastle-upon-Tyne—Mr. Benjamin Plummer.
Leith—Messrs. Robert Anderson and Co.
Glasgow—Messrs. A. G. Kidston and Co.
Bristol—Messrs. Morgan McArthur and Co.
Plymouth—Messrs. Luscombe, Driscoll, and Co.
Southampton—Mr. W. J. Lefeuvre.
Yarmouth—Messrs. John Shelley and Co.
Zinc from 20 to 24 oz. per square foot is generally used for roofings, which come at least one-third cheaper than slate coverings; and the ship sheathing, which lasts from five to six years, comes two-thirds cheaper than copper or yellow metal. And if the zinc coverings are made of the Vieille Montagne Zinc, and under the superintendence of Mr. FREDERICK BROWN, the surveyor of the Company (for which no charge whatever is made), a guarantee will be given of its durability.—For further particulars and prices, apply to Mr. H. F. SCHMOLL, General Agent for England, at the Company's Offices, No. 12, Manchester-buildings, Westminster-bridge, London.